



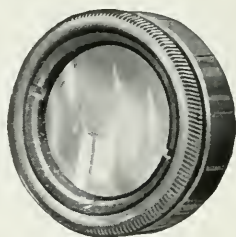
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



NOVEMBER 1917

CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.



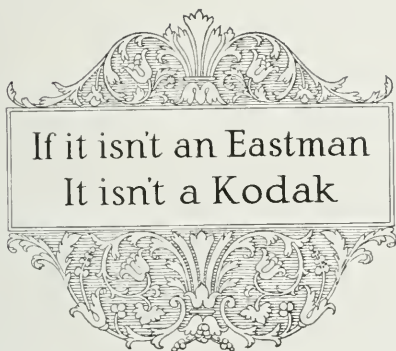
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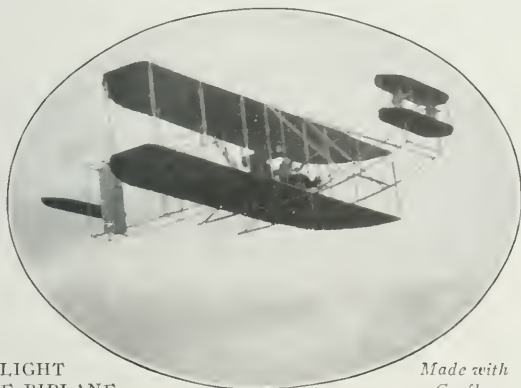


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VOL. V

NOVEMBER, 1917

No. 1



THE FLIGHT
OF THE BIPLANE

*Made with
a Graflex*

THE WONDER YEAR

BY ALBERT CRANE WALLACE

No angle from which we may look at the year 1917 can fail to reveal it as an amazingly picturesque year, perhaps the most picturesque in the history of the world.

The world has, alas! had thousands of wars, and dark years have passed before various peoples. But

never before were so many nations, so many acres of the earth, so many millions of the earth's creatures involved in a single conflict.

Especially are the months now passing uniquely memorable, for the great Republic to the south has entered into the turmoil of the world war, bringing a freshness and



RUINS OF THE BEAUTIFUL CHATEAU OF CHAULINCOURT

The buildings were blown into the Somme by the Germans, and British soldiers are seen clearing a path for the river

From a photograph made at the Front

energy which promises at this phase of the conflict to produce decisive results.

This is, indeed, a wonder year, wonderful in its significance, wonderful in its human activities.

It is a bustling year, and no one interested in the drama of life in all of its little and big elements, can help feeling that just now the world at home and the world remote are more picturesque than ever before.

The interest of every picture must follow its meaning. The meaning of a photograph must be greater to one than to another, so that its interest must be expected to vary in the same degree.

When we stop to think what the world picture to-day means to the world, we have the best explanation of the tremendous interest of these pictures.

This meaning is not confined to battle fronts, to big guns, to transports, to camps and parades. Because the war has reflected itself in every phase of life, in every remote village as well as in the spreading cities, a thousand phases of life that under ordinary circumstances had but a matter-of-fact interest, now have an interest magnified by the immensity of a vast event.

The farmer at work in the fields means something to-day that he



A ROUGH SPOT

could not mean in times of peace, for the eyes of the world are turned upon him with an intense eagerness. He is as much a part of the wonderful drama as the man in the trench. The new ship sliding into the sea has an extraordinarily heightened significance. The college campus has resounded to fife and drum. The children's "soldier caps" start one to thinking on lines unusual to him—start him to wondering, perhaps with a lump in the throat, what about these babies? Shall they grow up to inherit the liberties we have enjoyed or shall they and their children become subservient to a foreign military autocracy?

To think of these things is to

feel a special eagerness for Kodak enterprises. In other words, we are picturing our thoughts when we picture war time in all of its graphic movement.

Pictures talk louder than words. They have more than a power to please—they have a power to record, to guide, to stimulate.

Yet I am thinking just at this moment less about the historic interest of pictures taken in war time, near and far from battle itself, than I am of the downright human interest of every picture of which we can say: "This was in 1917 when the Great War was at its height."

Though the picture itself may reflect no activity special to war



WAR TIME HONORS OF THE FARM

Made with No. 2C Brownie

time, the fact that it belongs to that momentous era will always give it a certain coloring.

I found myself the other day taking a picture of our home and garden (with the dog and the baby) for a souvenir value I know it will always have in those happier days when peace comes back and we shall look upon 1917 as having been the climax of the mighty struggle.

Thousands of home pictures are going to the "boys" in camp and across the sea, and precious Kodak images are coming back to tell their little part in the story of the wonder year. Who shall undertake to estimate the future value of this picture of brother Jack in his khaki on the way to his first camp? It is already worth more than a thousand times its weight in photographic silver.



WAR PLAY

Made with O Brownie

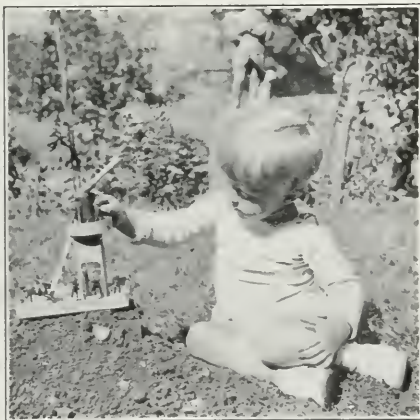


MEDICAL SUPPLIES FOR THE BRITISH RED CROSS

From a photograph made at the Front

THE DRY MOUNTING OF PRINTS

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WAR TOYS

Made with No. 1 Kodak Jr.

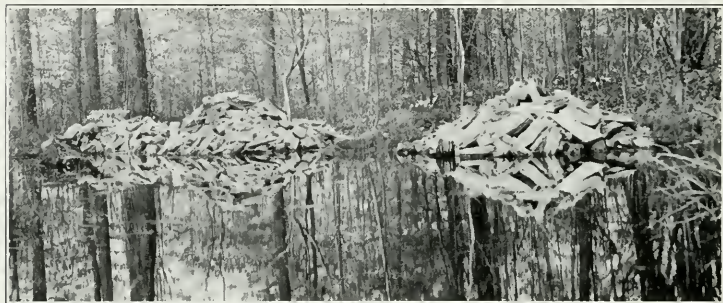


FIG. 1

REFLECTIONS IN WATER

WHEN the foreground of the subject we wish to photograph consists of water we should, whenever possible, avoid representing the water as an unbroken mass of white or gray. We can nearly always do this unless the water is perfectly smooth and there are no objects or reflections outlined on its surface. When

ripples or waves are seen these can be recorded, if the light is good, with an ordinary snapshot exposure, and when the shore line across the water is near enough so that the reflections from objects on the shore will be prominent in the foreground of the picture these reflections will very effectively furnish the needed foreground detail.



Fig. 2.—Made with a Graflex on Eastman film from deck of steamer going about 20 miles per hour in opposite direction; f.5.6; 1-295 sec., 4.45 p.m., June 25th

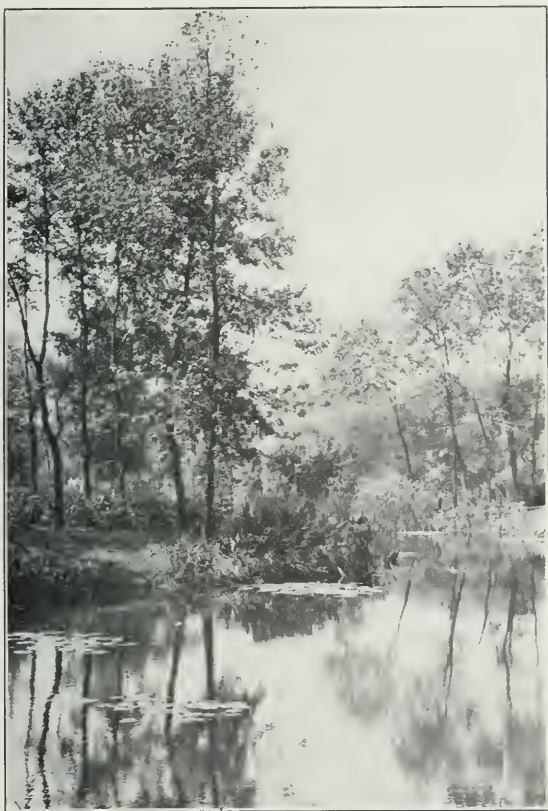


FIG. 3

If the water is clear, is unruffled by wind or current, and there is nothing floating on or protruding through its surface it will give mirror-like reflections. Under these

conditions unique pictures can be made which, when trimmed so the shore line is nearer the middle than the margin of the print, will often make us wonder whether we are

viewing the picture right side up or upside down.

It was under these conditions that the photograph represented by Fig. 1 was made. The reflections are nearly as brilliantly rendered as the objects they reflect. By turning the picture sideways, so it will be seen as a vertical panel, each of its sides will appear as almost a duplicate of the other.

Fig. 2 shows a subject photographed against the light, that is, with the sun in front of the camera. To prevent the sun from shining on the lens and fogging the film, a hat was held slightly in front of and about a foot above the camera. The water was muddy, but its surface was smooth enough to give a reflected image of the clouds in the sky and the dark colored boat.

The type of picture represented by Fig. 3 can be made wherever trees grow beside water.

When photographing reflections we should remember that the calmer the surface of the water the more sharply outlined will be the reflections and that while the most brilliant reflections are seen in clear water, all water, no matter how turbid it may be, will give reflec-

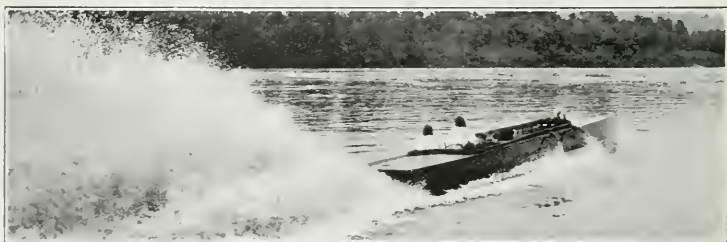
tions when viewed at the right angle, if its surface is not too rough.

By watching the image in the finder, when the camera is held at different heights above the water level, we can determine from which elevation the most pleasing pictures can be obtained. Fig. 1 was photographed from a low position, the camera being held quite near the water level. Fig. 2 was made from the upper deck of a large steamer, the camera being at least twenty feet above the water.

Give the same exposure for a reflected image that you would give for the subject the reflection represents. When the sun is shining brightly try $\frac{1}{25}$ of a second with stop 16 if there are more dark than light tones in the subject and $\frac{1}{50}$ of a second with stop 16 if there are more light than dark tones. With cameras that have no stop 16 make a snapshot exposure.

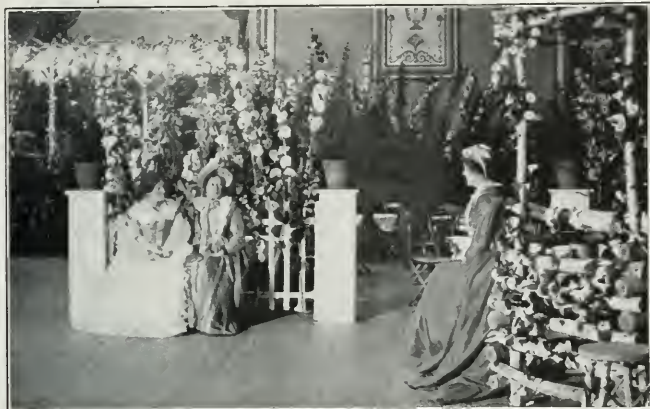


To insure having parallel vertical lines in the subject appear parallel in the picture, the camera must be held so these lines will be parallel with the sides of the finder.



HIGH SPEED

Made with a Graflex



Made with No. 1A Special Kodak; stop, f.6.3; by the light of one No. 1 Eastman Flashsheet, held in Kodak Flashsheet Holder; group about 25 ft. from camera; Flashsheet about 20 ft. from group

A FLASHLIGHT STORY

BY B. B. SNOWDEN

HAVE you ever made flashlight pictures? Would you know how to if the need arose?

If not, best learn now. Tested knowledge is a useful thing to have on tap. It enables you to go ahead at the proper moment and do the thing without a hitch. Besides, you may easily find that the flashlight method is the very one for certain kinds of pictures you have always wanted. It is a fact that few realize the possibilities of flashlight, with its opportunities for controlling the illumination, until they have tried it.

A modest acquaintance with flashlight served me a good turn in the case that I shall tell of. An "Old-Fashioned Garden Party" was to be held in a large public hall.

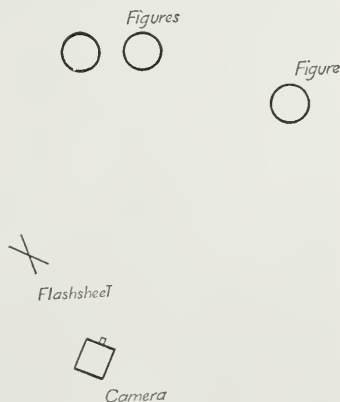


Diagram showing relative positions of Subjects, Camera and Flashsheet at the time above picture was made. Unless the Flashsheet is behind the camera the lens must be shaded with, for instance, the body or a piece of cardboard, or the flash will fog the negative.

Much labor had been expended in erecting rustic booths and decking them profusely with artificial flowers, made entirely by the women in charge. The latter were garbed for the occasion in the fashions of an earlier day, resurrected from old clothespresses and attic trunks. Altogether, the "garden party" was to be a very striking affair, so much so that those who had arranged it felt that some pictures should be made to preserve their memories of the occasion. At this point they turned to me.



Made with No. 1A Special Kodak; stop, f.6.3; one No. 1 Eastman Flashsheet in Kodak Flashsheet Holder. Subject about 12 ft. from Camera; Flashsheet ignited about 16 ft. from subject.

Figure



Camera



Flashsheet

Diagram for picture opposite shows that the Flashsheet was ignited behind the camera. In such cases the lens need not be shaded.

A morning visit to the hall filled me with misgivings. The display was effective, but difficult to make effective in a picture. The booths and decorations were too scattered to yield a good general view. Moreover, by daylight the illusion was altogether lost.

My decision was to make the photographs at night, by flashlight, before the doors were opened to the public, taking views of different effects



PASTORAL

Made with No. 2C Brownie, by W. F. Wagner

instead of trying to make one general picture. Two of those views are shown herewith. The data under the pictures, together with the accompanying diagrams, explain how these pictures were made.

In each case the exposures were made at the largest aperture of the lens, $f.6.3$ on my No. 1A Special Kodak, and that suggests an important point: With this method of illumination, the larger the opening of the lens the less flashlight you need. If one sheet is necessary at $f.8$ (U.S.4), two sheets will be necessary at $f.11$ (U.S.8), and so on. Therefore, when the figures to be photographed are all about the same distance from the camera, it is best to use the largest aperture available.

In order to avoid causing nervousness in the subjects I went through a preliminary arrangement of the pose for each exposure, getting the figures located as they should be in the finder and then releasing them from their positions until I should be ready for the picture. They were not recalled from the different booths until every detail had been arranged and

the picture could be made without a moment's delay. At the same time, the lights in the hall were left on, partly to decrease the contrasts, but much more to keep the subjects at their ease and to avoid the staring expression of the eyes sometimes seen in flashlight portraits that were made in very dark rooms. In flashlight work the shutter must not be opened until the instant before the flashlight is ignited, and the shutter must be closed immediately after the flash. If this is not done the light in the room will cause a double image, showing movement of the subjects, to appear in the negative.

For some subjects flashlight is by far the best illumination to use. In photographing rooms that are dimly lighted during the daytime, or rooms in which the lighting is very contrasty—dark in some parts and light in other parts—flashlight is a great convenience, as it will enable one to easily secure pictures that it would be very difficult or wholly impossible to secure by daylight, while for indoor photography at night it is indispensable.



WATER MARKS ON NEGATIVES

WHEN a dry negative becomes spattered with water no harm will result if it is immediately completely immersed in water and then dried. If drops of water are allowed to dry on a

negative they will cause spots of lesser density than their surroundings. These spots will show in the print.

When a partly dried negative is moved to a place where the drying

is considerably hastened a difference in density between the slowly dried and the rapidly dried parts will result. This will also show in the print.

Water marks and uneven drying marks can often be removed from a negative by placing it in water that is not colder than 65 degrees nor warmer than 70 degrees and leaving it there until the water has penetrated and uniformly expanded all the gelatine. This will usually take from half an hour to an hour, depending on the hardness of the gelatine. After the

negative has been in the water half an hour, it should be examined, by holding it up to the light and looking through it, then, if the water marks are still visible it should be returned to the water. It is well to leave it in the water about fifteen minutes after the water marks have disappeared, after which the water should be drained from the negative, and, after all drops of water that form have been removed from both its sides, it should be dried where the air is free from dust and is constantly changing.



GAME STRATEGY
Made with a Kodak



C H A R A

VARIED INTERPRET
THE KODAK AND



T E R

IONS BY
ROWNIE



HALATION

BY DR. C. E. K. MEES

A FRIEND in Australia has sent us some photographs taken at night in his home town showing the beach and the lights along the water front. He took his first picture on an ordinary rapid plate and the lights appear in the photograph as bright spots surrounded by a dark ring, beyond which is another ring of bright light (Fig. 1).



FIG. 1

This curious effect is due to what is called halation.

Halation is caused by light which passes completely through the emulsion, and also through the glass on which emulsion is coated, and is then reflected back into the emulsion from the back of the glass. The simplest form of such reflection is shown by the diagram.

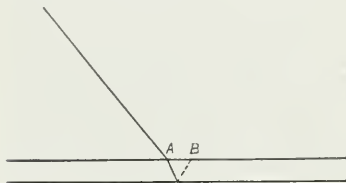


FIG. 2

Fig. 2, where we see a ray of light falling on the emulsion at A. Most of this light is absorbed by the emulsion but some of it passes through to the glass and is reflected back of the glass, so that it reaches the emulsion again at B.

But this simple diagram does not account for the appearance of the lights in Fig. 1, because if a ray of light had fallen on the plate squarely at right angles and had passed through the emulsion at right angles it would be reflected straight back and the halation would not be spread beyond the image, whereas, halation is just as

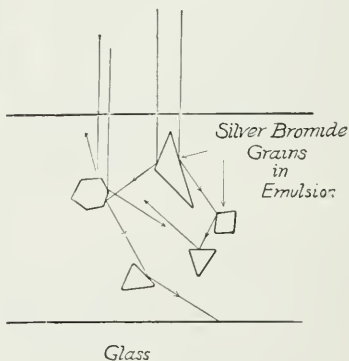


FIG. 3

bad in the center of the picture where the light fell squarely on the emulsion as at the edges. Also, it does not account for the rings around the lights.

As a matter of fact, light falling on a photographic plate does not go straight through in this simple

way. When a narrow ray of light falls on the grains of silver bromide it is reflected from them and scattered about.

So we must imagine that if we could examine a magnified section through the plate we should see the light falling on the emulsion scattered in all directions, as shown in Fig. 3, so that a narrow beam of light is spread out into a kind of blur, the size of the blurring being very minute but still appreciable. This effect of the light spreading in the film, as indicated in Fig. 4, is called *Irradiation*.

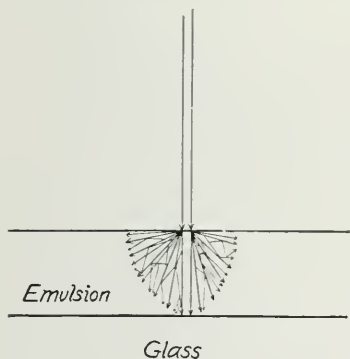


FIG. 4

We see then that the light which passes through the emulsion of the photographic plate is traveling in all directions, whatever may have been its direction before it reached the emulsion, and if we follow the light into the glass we shall find that most of the rays pass out of the glass again into the air, but that some of them are reflected back into the emulsion (Fig. 5).

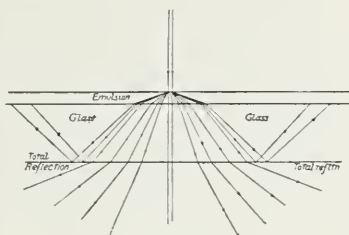


FIG. 5

In order to understand this we must look at the way in which different rays of light travel through glass. When a ray of light passes from the air into a block of glass it is bent by the glass, which is a medium of different density, and when it leaves the glass again it is bent back so as to travel along a path parallel to that along which it entered the glass; but if a ray leaving the glass meets the surface at too big an angle it cannot go out and it will be totally reflected back again (see Fig. 6).

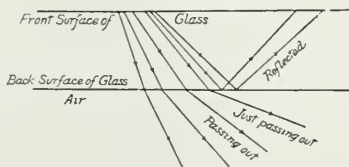


FIG. 6

It is these totally reflected rays which produce the ring of halation. When the image of the lamp falls on the emulsion and enters it the rays are spread out by irradiation so that we get a small spot at the center of the lamp; then this scattered light passes into the glass of the plate and the rays which are near the center pass through the

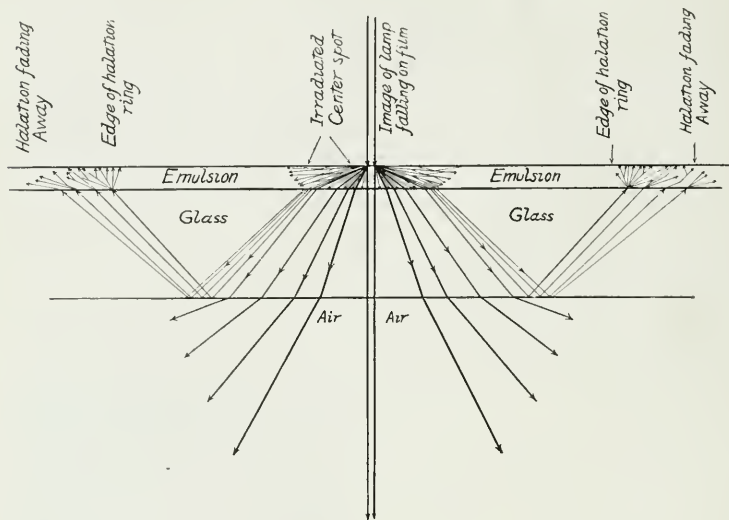


FIG. 7

glass and we get a dark ring, but when suddenly the angle of the rays to the surface of the glass gets too big to get out they are reflected back and produce a sharp ring of halation around the center of the image, and then, as they go further and further from the image the light gets weaker and the halation fades away again.

Thus, as is illustrated by Fig. 7, we can account completely for the rings of light shown in the picture sent us by our Australian friend.

If we could coat the back of the glass with some substance into which the rays would pass directly from the glass and which would completely absorb them, we should wholly prevent the halation, and if we choose this "backing" as it is called, so that it is of the right

kind and almost entirely absorbs the light, allowing very little of it to be reflected, then it will be quite effective in reducing halation, but in practice it is not altogether easy to get a satisfactory substance for backing and to apply it correctly. Our Australian friend tried a "backed" plate, and although he got rid of the sharp rings of halation his lights are still obscured by



FIG. 8



FIG. 9

irregular blotches of light reflected from the back of the glass (Fig. 8).

The best way of avoiding halation is not to have any glass at all. If we take the photograph on film

the film is so thin that the light has very little room to spread and we get only a very small spreading of the light rays. This spreading, in fact, is no greater than that necessary to give a correct representation of the effect of the light on the eye, since there really is a spreading of the light in the eye, and we do not actually see a bright light on a dark night as perfectly sharp, but as having a small amount of blur around it. So that in Fig. 9, which was taken on Kodak film, we get a result which gives a very good idea of the scene as it appeared.



A GARDEN FROLIC
Made with No. 1A Kodak Jr.

DRYING NEGATIVES

A negative that is technically perfect when removed from the wash water, after fixing, may be impaired by uneven or too slow drying. The importance of drying negatives under the best obtainable conditions is often overlooked.

The statements in the following article, which is a revision of one published in the June, 1914 Kodakery, are based on the experiences of many careful workers.

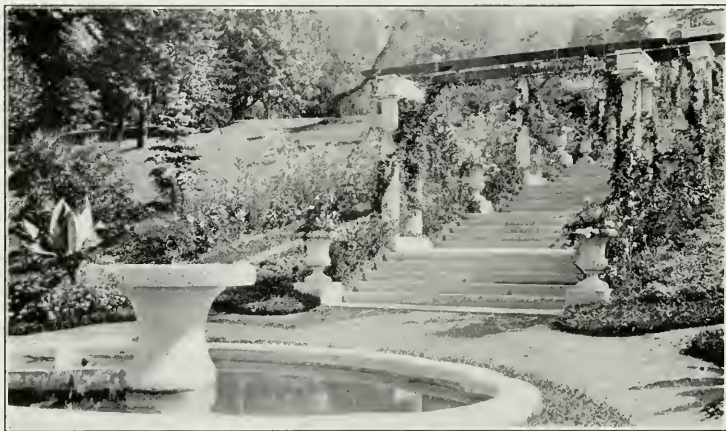
THE drying of negatives—after they have been developed, fixed and washed—is ordinarily such a simple matter that it seldom needs any particular attention; but as the drying process may affect the printing quality of negatives we should dry them in the manner which insures the best results.

When the negatives have been removed from the wash water, and the water has drained off, the surface of the negatives should be examined and if drops of water have formed they should be re-

moved. If allowed to remain they will cause dark spots on the print.

The easiest and best way to dry negatives is to place them in a current of air. This can usually be found near an open window, or a draft can be created with an electric fan.

Under ordinary conditions, when the negatives are placed where the air is changing, they will dry in from one to three hours, and the only precaution needed is to see that they are dried where no dust can settle on them. When dust settles on a wet negative it becomes



ART AND NATURE

Made with No. 3A Folding Pocket Kodak



CEMENTING THE PIPES
Made with No. 3A Pocket Kodak



PARADOXES OF SUMMER

Made with No. 3-A Folding Pocket Kodak

so firmly attached to the gelatine that it can only be removed (with a tuft of cotton) after the gelatine has been again softened by immersion in water. If the dust is left on the negative it will make white spots on the print.

When wet negatives are placed in a warm, close room they will dry very slowly. This will increase their density and likewise destroy their delicate gradations; and should the drying be excessively prolonged (eighteen hours or more) a chemical change, of which we are informed by a very perceptible odor, will take place in the gelatine. When this occurs the negative will become coarse-grained. While the coarse grain of such a negative may rarely be noticed in a contact print it will show plainly in an enlargement.

On a sultry day in summer the air is warm, excessively humid and stagnant. As the atmosphere is

almost saturated with water vapor it absorbs the moisture from wet negatives very slowly. On such days some workers, having no electric fan available, hasten the drying of their negatives by immersing them in alcohol. This method is unreliable and may create complications. When the water is quickly withdrawn from the negatives by immersing them in successive baths of alcohol the gelatine may contract so rapidly that it will crack. If there is a trace of hypo left in the negatives they will become streaked or stained when the alcohol comes into contact with the hypo, while, if the alcohol is impure, it may also cause stains. A further and important objection to the use of alcohol is that it makes the emulsion hard, or as it is termed, "horny." Wood alcohol must never be used, as it will dissolve film.



A CORNER OF HAMPTON COURT
Made with No. 3A Pocket Kodak

Drying negatives over a gas or oil stove is hazardous. It often results in melting the gelatine, thus ruining the negatives.

In houses equipped with hot air furnaces a draft can usually be created in the evening of the most sultry day. The entrance to the air flue, through which the outdoor air passes to the furnace, is always located near the ground. As the ground cools during the night, the air near the ground will become cooler than the air in the house, and by opening a register (preferably in a second-storey room) this cool air will enter the flue and, being heavier than the air in the house, will displace it, thus creating a draft, and when negatives are placed in this draft they will dry promptly. This method has been used by the writer for many years.

When this method is not available the negatives should be left an hour or more in a fresh acid fixing bath (this prolonged fixing will do no harm) after which they will be thoroughly hardened, and then, after they have been washed, they should be placed between open windows or doors where they will usually dry in a few hours.

In heated rooms in winter the air is very dry, and wet negatives placed where the air is moving, as it always is near the source of heat, will dry rapidly.

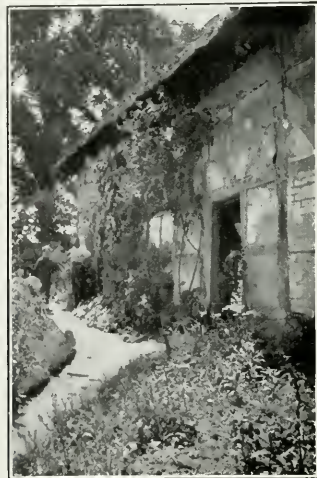
Wet negatives should not be placed near a stove, as the heat may be too intense, but they may safely be placed a few feet from a hot-air register or a steam or hot-water radiator.

Negatives should never be dried

in a cold room in winter, unless a current of air is passing through the room and the temperature is considerably above the freezing point. Should the moisture in the gelatine freeze the negatives would be ruined.

While the negatives are drying they should not be moved from the place where the drying began. Should it be found, after they have partly dried, that the drying is proceeding slowly, and they are then moved to a place where they will dry more rapidly, a pronounced difference in density, with sharply defined lines between the slowly dried and the rapidly dried parts, will result.

From what has been stated it is evident that the simplest and best way to dry negatives is to dry them where the air is moving.



AN ENGLISH COTTAGE
Made with Vest Pocket Kodak

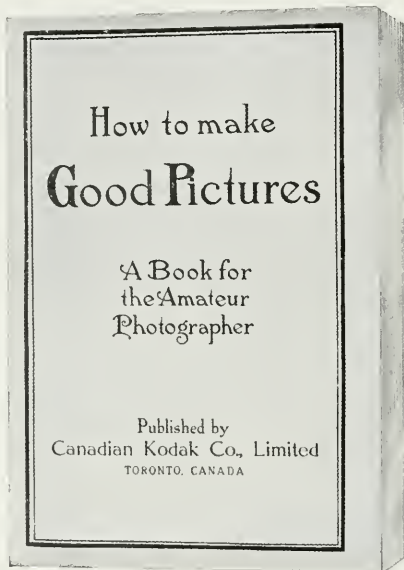
FOR THE ASSISTANCE OF OUR READERS

SINCE you first began making pictures you surely have found that as you have become more proficient you have become more particular about the quality of your work, and that pictures which you once thought perfect seem less so in the light of acquired knowledge. Do you know why they now do not wholly please you? It is because you have learned how to detect mistakes but have not yet learned how to wholly avoid or correct them.

Do you wish us to help you? Would you care to have us criticise your photographs? If so, send us the prints, together with the negatives from which they were made, stating the name of the camera, the name and grade of the paper used for making the prints, whether the negatives were developed in the tank or in the tray, the time of day, the date and the light conditions prevailing when the exposure was made, the stop used and the exposure given; then we will gladly write you our opinion and will try to assist you in becoming more proficient in your work. The negatives and prints will be promptly returned and any assistance we may be able to render will be offered *free of charge*.

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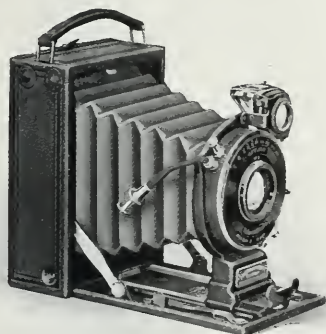
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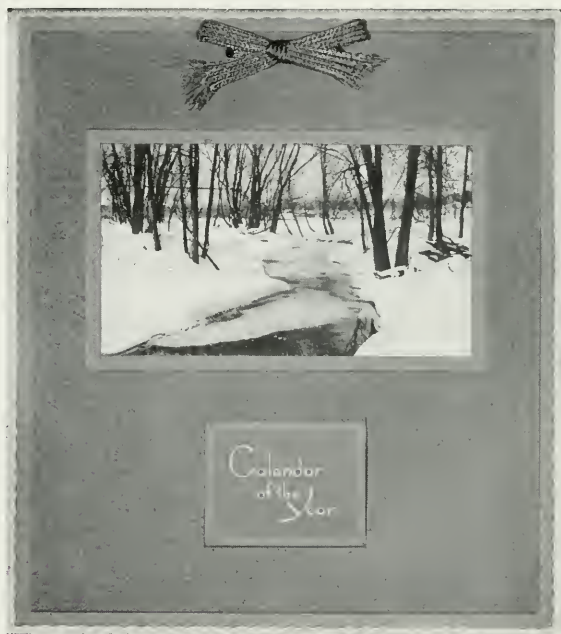
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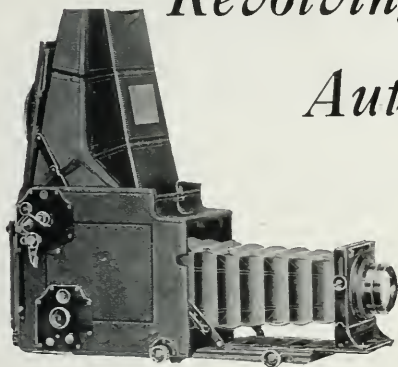
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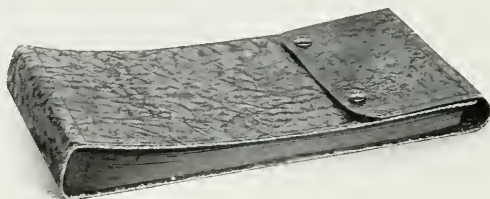
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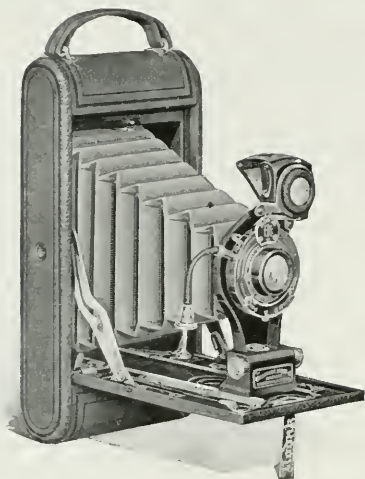
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A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



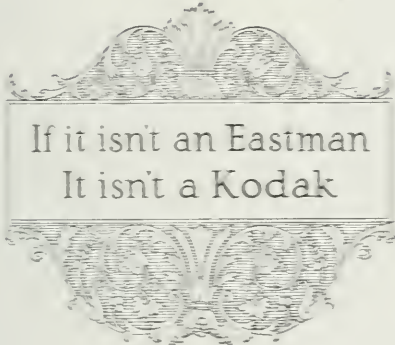
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KODAKERY

A Journal for Amateur Photographers

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VOL. V

DECEMBER, 1917

No. 2



THE "BALMORALS" COMPOSING SONGS

THE PLAY SIDE OF WAR

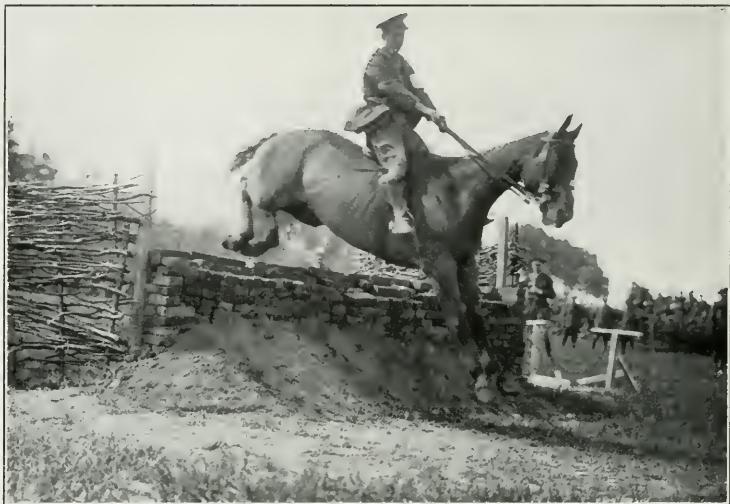
BY C. HAZEN TRAYVOR

Illustrated with Official Photographs made for the British Press Bureau

THERE has to be a play side. No human nerves could stand the strain of modern war—of any war for that matter—without the alternating of the light and

frivolous with the grim and terrible. All war and no play would not only make Jack a dull boy, it would finish him up in short order.

Every general recognizes this.



AT A HORSE SHOW BEHIND THE BRITISH LINES

It is not a matter of sentiment. It is a matter of business—the business of war. In spite of anything

that may be said, in spite of any mistakes that may be made in war or out of war, men cannot be made into machines. Men can work like perfect machines when they work like perfect men, and they cannot work like perfect men if they fall below a certain point in mental cheerfulness.

Yes, men must be cheerful to fight well. Generals found that out long ago, and they act on what they have found out during every day of this frightful conflict that is going on in Europe. They not only take men out of the trenches after a certain number of hours to “rest” them, to get



OFFICERS WATCHING SPORTS OF THE FAMOUS SCOTTISH “BLACK WATCH”



FIXING UP "MISS GERTIE" OF THE "BALMORALS"



A CHAT BEFORE THE OPENING OF A SHOW

them away from some of the noise and strain, but to give them a chance to laugh, to give them a chance to be foolish, to get that emotional relief as well as that bodily relief of which they are so much in need after even the briefest ordeal in the very presence of death.

Just how men shall get this relief, just which kind of levity, just which kind of sheer foolishness, the men may find for themselves. They may not need foolishness in the ordinary sense. They may want to plant or tend a little garden. One poilu did this—worked over a few yards of garden with infinite care and delight and called it whimsically “Yama No Uchi” after a famous American estate he

had heard of. Others paint, or sew or knit, or practise on musical instruments, compose songs, build miniature castles with draw-bridges, dress dolls, invent tools, carve statuettes in wood, model in clay.

Concerts and dramatic entertainments are common occurrences. In plays men take women's parts with fantastic results, not without help at times from French country maidens of the region where the high jinks are in progress. The work of preparing for such entertainments—they often are very elaborate—is entirely congenial. Nothing is too much trouble that has fun enough in it.

You may be sure that the audiences at these shows are rapturously appreciative. There



ON THE ROAD TO A MERRYMAKING



A
MOROCCAN
CAVALRYMAN



A HORSE SHOW WINNER

are many recalls—and no reverential tributes to the actors. It is man-to-man all the way through.

Then there are foot races, steeple chases, catch-the-ring-on-the-bayonet races, dashes with gas masks and all manner of obstacle races invented on the spur of the moment.

The "catch the ring" may be taken as a good example of the ingenuity exercised in inventing games having a relation to the war game itself. This race begins with a dash and ends with a difficulty. The difficulty is presented by a series of small fixed rings. Each man in the race meets one of these rings and must pass the point of his bayonet through it as quickly as in a thread-and-needle



START OF A GAS HELMET RACE



THE GAME OF "TAKING THE RINGS"

At end of a dash bayonets are run through fixed rings

race. A fraction of a second's delay is likely to lose him his chance of winning. A short dash remains after picking the ring.

The Arab horsemen may be called in at a circus to make their horses do stunts. Anyone who is able to invent a new form of fun has full opportunity to indulge his fancy. The current of men's thoughts is changed and they go back to their grim work in better spirits and in better health.

How much the managers of war believe in these things is shown by the fact that the photographs for this article are made by official photographers for the British Press Bureau.



Flashsheets make flashlights.



MAUD MULLER AND
PIERROT



FIG. 1

*Photographed by Moonlight with No. 3A Folding Brownie, by Floyd Boston.
Exposed 50 minutes; stop, about f.11.*

MOONLIGHT-ON-THE-WATER EFFECTS

WE think of night as a period of darkness. Even on the most brilliant moonlight night the sky is so much darker than it is during the daytime that objects on the land and on the water are never so brightly illuminated as by sunlight.

Pictures that are intended to represent night scenes must not only contain more dark than light tones, but should preserve the special effects of night.

In the reproduction from a photograph, Fig. 2, page 11, the land and the greater part of the sky and the water are represented by dark tones. The light comes from a single source and appears to be so weak that only the clouds and the water show any reflections. Since the first impression this picture conveys to the observer is that it represents the moon above a body of water it does, unmistakably, suggest a moonlight night scene. But such a picture cannot be made by moonlight because it

shows comparatively sharp images of waves, and sharp images of waves can only be obtained with snapshot exposures. The picture also shows the outlines of the landscape and in order to make a picture by moonlight that will record the outlines of the landscape a time exposure must be given.

When we consider that a 50 minute exposure, with a stop of about the value of $f.11$, was needed for recording, by moonlight, the scene shown in Fig. 1, and that had the moon been included in the field of view this picture embraces a 50 minute exposure would have made the moon appear as a line instead of as a disk, it is evident that such a picture as Fig. 2 can only be made during the hours of sunlight.

The reason why Fig. 2 contains more dark than light tones is because the exposure was timed for recording the highlights and half-tones only.

When making pictures that are



FIG. 2

The light that lightens the darkness



FIG. 3

intended to suggest night scenes, in which the sun is to represent the moon, the sun's disk must be partly hidden by clouds. If it is not, and the exposure is ample for recording the landscape outlines, the negative will, in most cases, be fogged. The presence of clouds is also necessary for pictorial effect.

Figs. 3 and 4, made in the same way as Fig. 2, also suggest night scenes, and they demonstrate that the effects obtained in this kind of work depend chiefly on the cloud formations. When the sun can be seen through the clouds, and also when the sun is completely hidden but its rays brightly illuminate the edges of the clouds or the horizon, such pictures can easily be made during the hour after sunrise and the hour before sunset. They can usually be obtained with an ex-

posure of $1/100$ of a second when stop 16 is used. No color filter is needed. With cameras that have no stop 16 use the smallest stop and make a snapshot. See that the negatives are fully developed—20 minutes at 65 degrees when Film Tank Powders are used in a Film Tank—and then make the print on Regular Velox, printing the shadows as deeply as can be done without making the highest lights gray.



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FIG. 4



A SHADY SPOT IN THE PASTURE
Made with No. 2C Kodak Jr., by W. F. Wagner

SISTER'S SOLILOQUY

IKNOW it was a forced laugh that accompanied his remark, but on the surface father was light-hearted when he told us this morning at breakfast that this was the day for the payment on his subscription to the Victory Loan. Between the bonds he bought and what he gave to the Red Cross, dear old Dad dug pretty deeply into his pile this year but he always cheers up with the remark: "Thank heaven business is good."

Mother is over at the Red Cross rooms running a knitting machine that makes the most amazingly thick socks for the boys at the front. Sister May is out on the porch this minute knitting a sweater for that handsome Lieutenant Sperry. He's an awfully nice boy. I wonder what sister is thinking about.

And Ned, the dear old tease, he

was a good brother to us, though aggravating at times. Poor boy it seems as if he had been gone for years and it's only six months since he marched away. He must be home-sick sometimes over there in France without any sisters to bother.

And I'm the only one who doesn't seem to be doing anything to help. I made an awful mess of the wristlets I tried to knit. I just *hate* knitting anyway and Dad says I'm too young to be a Red Cross nurse—but the costume I wore at the benefit was terribly becoming.

Poor Ned. I can write to him anyway. And I am going to send him some pictures. Say, it will almost make him feel as if he were home again. My Kodak is going to get busy, busy, busy. Some subjects, let me see: Dad reading his

paper, mother at her mending, May working on that interminable sweater, the house, so he will see how the ivy has grown, and then Nimrod, poor fellow, he will miss the fall hunting but Ned is after bigger game now. If I could only make Nimrod understand, how proudly he would pose. The troop starts to-morrow morning, I'll get some snaps of them to send along, and yes, I'll wander over to the Henderson's and get a few pictures of Elizabeth. I won't tell her *why*—but I'll bet a box of candy she will guess and will try to look her prettiest and maybe it won't make Ned's eyes stick out when he gets the prints—and here's another bet—he will show those prints to his chums with just a bit of a swagger.

Yes, and I'm going to have Mary make a picture of little me. Ned

will be glad of that too—but he will write something terribly teasing about it.

I believe I will just mail some prints to Jack Robbins too. Poor fellow I'm afraid he doesn't have much time to fox trot now he is in the army. Horrible thought! Perhaps he does have when he is on leave. Anyway I'll send the pictures and perhaps he will remember that night at the country club. Speaking of the country club reminds me, I am going to get some pictures that will interest Jim Redfield, and there's Kenneth Stewart and Sam Oliver. They were such a jolly bunch—and this town is dead slow without them. But perhaps they miss us as we miss them and pictures will cheer them up.

Why, there *is* something I can do!



A HALT FOR REPAIRS

Made with No. 2C Brownie, by W. F. Wagner

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THE OLD HOME

TIME AND CHANGE

BY B. B. SNOWDEN

Illustrated by the Author

IN dwelling on the past it is easy to forget the present and fortunate indeed are they whose memories of the past are kept vivid by pictures that accurately record the people, the scenes and the associations they knew in the bygone days.

These facts were impressed on me a few months ago as I motored through a section of a large city which I had not seen for eleven years. It was a section in which I had lived, in which, indeed, I passed the years of boyhood before going off to college.

Time had marvelously changed things. The open field and tracts of farm land I had known as a boy were now marked with the geo-

metrical pattern of new streets, and my old home, that was embowered so beautifully in its nest of trees with the massive hedge that ran about it, was gone.

I knew it was gone, of course—had known for years—and yet, as I viewed the site on which it had stood, what a vision: Tenements and stores, stores and tenements. The home scenes of my boyhood, among which I had awakened to the twitter of birds and shared the evening banter as we watched the summer moonlight make a checkered pattern on the lawn and veranda—my mother dropping off in her chair for a little nap but protesting later that she had not been asleep—all were gone, vanished as



WHERE THE OLD HOME STOOD--THE SAME SPOT TO-DAY

completely as the enchanted isle of some Arabian tale.

Back at my present home, many miles away in another Province, I have been looking over my early albums, for happily I was already a devotee of the camera in those days gone by, and there is one picture which is especially good to look at, for it reminds me that the old home was indeed real, not a mere figment of memory, idealized and enlarged. The past may have vanished, but with this and other pictures before me I can for a moment forget the fact.

Easy as it is in dwelling on the past to forget the present, it is still more easy to forget the future. But when has there been a time with so much change in the air as now, and when has it been more important to provide the future with pictorial reminders of the present? The changes of the past moved more slowly than those that

are occurring now. The world war is responsible and we are on the threshold of a new era. The part that we are taking in the great world struggle is one that touches the lives of all of us.

The Kodak pictures of our boys that are going abroad—how we will cherish them, and the pictures of family and friends and home that the boys will take with them—how fondly they will treasure them! And then, at the great reunion, when the boys get back home again, we and they will realize what these pictures meant to all. Surely this is the time to make Kodak pictures of family and friends and home. In the years to come they will constitute remembrances of a stirring time.



Always an impartial historian--
the Kodak.

SNATCHING THE SUNBEAMS

THE sunlight that comes through a knothole in the side of the barn and makes a bright spot on the barn floor is visible as a bright spot solely because it is brighter than its surroundings.

If the interior of the barn is well lighted we may be unable to see the path of the sunbeams through the air, but by stirring up a little dust we can see the dust particles that are in the sunlight so much more distinctly than those that are in the shade that the path of the sunbeams from the knothole to the floor becomes plainly visible.

When the branches of a row of trees on either side of a roadway meet above the road and form a canopy of leaves through which narrow bands of sunlight shine, these bands of light can often be plainly seen when the air through which they pass contains dust or water vapor.

In narrow glens or ravines, where the daylight is much dimmer than it is out on the open landscape, bands of sunlight often enter through clefts in the rocks or through spaces between the leaves when there are trees at the summit or far up on the steep sides of the ravine.

The typical water eroded ravine is always on a hillside and water flowing through it rushes so rapidly over stones and precipices that water vapor is constantly passing into the atmosphere.

Whether it is dust or whether it is water vapor that reflects the bands of sunlight and makes them visible, they can be photographed with any kind of a hand camera,

provided the bands of sunlight are clearly outlined against a dark background.

The exposure to give depends on the background. A snapshot will record the sunbeams, but if the background is very dark a time exposure will be needed for recording the background detail. Our illustration, on page 21, is from a Kodak picture, made in a deep ravine, where the shadows were very dark. The data under the picture shows that an exposure of nine seconds was given with stop 32. This is the equivalent of stop *f.22* on anastigmat lenses. Had a camera that had neither of these stop numbers been used about the same result could have been obtained by giving the same exposure with the smallest stop. While no specific instructions can be given for recording bands of sunlight in the arched over parts of roadways, owing to the fact that some are more dimly lighted than others, we would suggest, however, that an ample exposure, say 3 seconds, with the stops mentioned be given if the subject is photographed between the hours of 8 and 4, while a 5 second exposure would probably be needed between 6 and 8 in the morning and 4 and 6 in the afternoon.

Very often pictures introducing sunbeam effects will be found to have a genuine dramatic interest, for they will frequently suggest the "spotlight" of the drama. The result will be most effective when composition is most carefully regarded in its relation to the direction of the bars of light.



THE SUN'S "SPOTLIGHT"

*Made with a Kodak. Exposure, 9 seconds; stop, 32;
2.30 P. M., June 29*

PHOTOGRAPHY AND THE X-RAY

BY DR. C. E. K. MEES

THE discovery of the X-rays was due to photography. In 1896, Professor Roentgen was experimenting at Munich with an exhausted vacuum tube through which he was passing a current of electricity, and was puzzled by the fact that some photographic plates contained in a box in his work room proved to be spoilt by exposure when they were developed. He knew that the plates had not been exposed, and on studying the cause of the trouble with the plates he found that it was due to some rays which were given off from his vacuum tube and which, though invisible to the eye, had been able to pass through the box and affect the photographic plates contained in it. Since he knew nothing of the nature of the rays which had pro-

duced this extraordinary result he called them "X-rays," x being the ordinary algebraic sign for an unknown quantity, and he found that these X-rays were able to pass through solid objects, so that if he wrapped a photographic plate in a piece of black paper and placed it in a box with a coin on top of it and then exposed the box to the rays from the tube he would find a shadow image of the coin upon the plate after development. It occurred to him at once that he could use this wonderful discovery to obtain images of the bones and other internal structures of the body, and the use of the X-rays in medicine and surgery grew with extreme rapidity.

At first it seemed that the best method of using the rays would be to obtain some screen on which



THE MAGIC OF OLD EGYPT

Made with 3A Folding Kodak



VARIATIONS OF THE DIVE
Made with a Graflex



AT TOP SPEED

Made with a Graflex

the shadows cast by the rays would become visible to the eye so that a doctor using the screen could place the patient between the screen and the source of the rays and study the structure of his body and any movements which occurred. It was found that the salt called barium platino-cyanide became brightly fluorescent under the action of the rays, giving out a green light which could easily be seen, so that by using a sheet of cardboard coated with crystals of this salt the structure and movements of the patient could be watched by the doctor.

For some years this fluorescent method, as it was called, was generally used but then it was found, as a result of a series of tragic events, that the constant exposure of the doctor to the rays which was necessitated by the use of the fluorescent screen was most dan-

gerous. A number of doctors died as a result of the action of the rays and it was realized that the X-rays though not at all dangerous to the patient who suffers only a short exposure to them, is most dangerous to the operator, constant exposure to small quantities of X-rays involving serious risk. There was only one way to meet this difficulty and that was to substitute for the fluorescent screen a photographic plate and instead of observing the structure on the screen to make photographic records which could be studied at leisure. It was soon found that the photographic method was superior to visual observation on the screen, especially when stereoscopic X-ray photography was introduced enabling an excellent idea of the depth of the internal structures to be obtained, and it had the great advantage that the negatives could



IN OLD LONDON
Made with No. 3A Folding Kodak

be studied by surgeons and specialists who had to conduct operations but who were not skilled in direct X-ray work and could not spare the time necessary for making observations on the fluorescent screen, so that at the present day the photographic plate has almost entirely displaced the fluorescent screen in X-ray work and it is not too much to say that in the modern practice of radiography the X-ray apparatus is used almost solely for the purpose of making photographs.

It has been well said that the great European war of to-day is a war of science. Science in all its departments contributes to this struggle of the nations. The progress of science has even been blamed by some who thought that the marvelous development of

modern science has made the war possible and that otherwise it could not have taken place or, if it had occurred, would have been less terrible. But if science plays a part in the war it is entirely impartial in the part which it plays; it hurts and heals. The chemists manufacture poison gas or produce high explosives which are fired in the shells but the chemist also devises the gas mask and the antiseptic which prevents the deadly gangrene. In the same way the photographer directs the gun, the aeroplane bringing back to the gunners the photographs which enable them to lay their weapons, but the photographer also directs the surgeon, showing him by means of X-rays the internal effect of the wounds so that he can use his skill for healing the wounded men.



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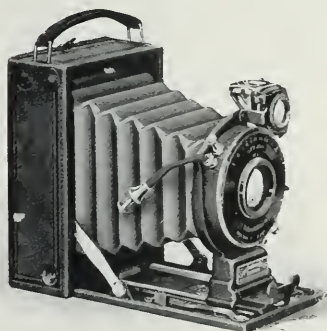
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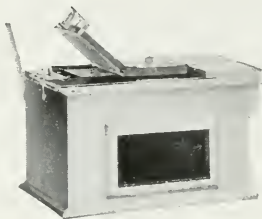
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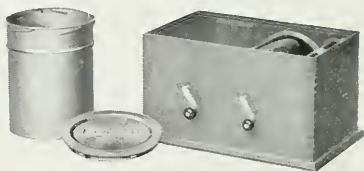
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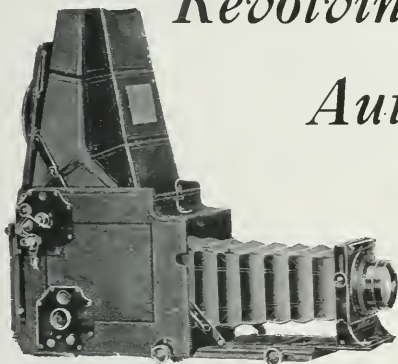
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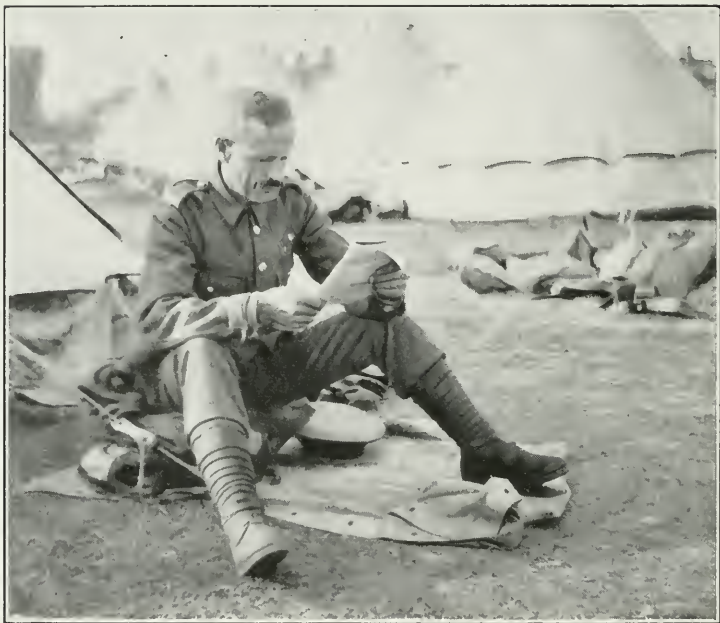
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JANUARY 1918

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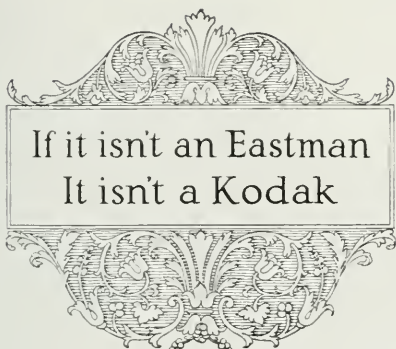
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Made with 3A Graflex, by Merle La Voy

KODAKERY

A Journal for Amateur Photographers

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VOL. V

JANUARY, 1918

No. 3



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BRITISH ARTILLERY ON THE FRENCH FRONT

KODAK WAR PORTRAITS

*With Photographs made with No. 3A Folding Kodak and 3A Graflex,
by Merle La Voy*

BY C. HAZEN TRAYVOR

WE find writers speaking of "the face of the country" or the "face of war." In fact, all picturing of things is a form of portraiture. Who has not seemed to see a face, perhaps the grotesque face of a monster, in an advancing engine? When the great

lumbering "tanks" made their appearance on the battlefield did not this very idea send shivers through the enemy?

One interesting book was called "Portraits of Places." The idea is scarcely fanciful. But I am thinking not so much of the poetical as



CAMP KITCHEN AT ENTRANCE TO CAVES IN FRANCE

*Copyright by Merle La Von*

A FRENCH PERISCOPE

of the dramatic side when I say "portraits." I am thinking mostly of the human face as we see it in the dress and the surroundings of war.

It is not by any means always, or even generally, a solemn face. There are solemn, drawn, haggard faces in war. We may be sure of that. But the faces translated by the camera are more likely to be faces either at their ease for the moment or faces lifted out of the stress of the situation, whatever it may be, by the agreeable variation of a pointed camera and the interesting suggestion of eyes far away that will see the results of the photographic adventure.

The Kodak pictures that illustrate these words of mine were made by one of the cleverest of the dauntless photographers who have been ready to go anywhere in sky or earth—who would even go



MR. LA VOY PREPARING FOR AN ASCENT WITH HIS MOTION
PICTURE CAMERA

"over the top" if they were permitted. Mr. Merle LaVoy himself is seen in the bow of an aeroplane with a motion picture camera at the brink of a flight over the lines.

If you look at this series of pictures you will see repeated in many situations the faces of men who "do things." They may not all be heroes in the romantic sense. The daily business of war is not done by "heroes" alone.

It is impossible not to feel freshly grateful to the camera, to the wonderfully compact and weapon-like Kodak, every time one sees a graphic series like this. Such pictures keep us close to the human heart that is beating "over there." They tell us vividly about the figures in the biggest drama that ever was acted. They carry to us the cheery smile of the man who is staking all on a simple duty that has behind it the most eloquent of



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CAPT. TRILLES, A FRENCH PRIEST



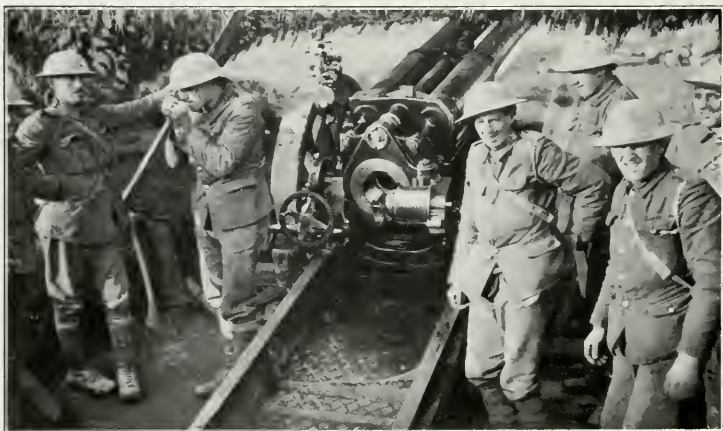
ANTI-AIRCRAFT GUN ON MOTOR TRUCK

all possible meanings. They show us eyes that can look straight and unflinchingly at Death. They show us the chins of courage, the willing hands of human service, the groupings of brotherhood.

We shall, indeed, owe a debt to these men who have risked so much and worked so wisely to tell us the truth about the war, to answer our curiosity, to enlist our sympathy; and we are not least grateful for every fragment of proof that the war is not all cheerless or inhuman, that not every moment is filled with horrors and that even the fringe of tragedy may have elements of beauty.



To appreciate the beauty of leafless trees we should photograph them outlined against the sky.



BRITISH ARTILLERYMEN ON THE FRENCH FRONT



TELEPHONE STATION NEAR A 15-INCH GUN

MAKING OUTDOOR SILHOUETTES BEFORE SUNSET

BY GEORGE A. CRIBBS



THE HUNTER

Made with a Kodak, by George A. Cribbs

MY first silhouette was almost an accident. My two brothers and I were fishing and hunting woodchucks along the creek, which has been our holiday habitat ever since we first became

able to handle the rod and the gun. Shortly before sunset I found the elder of the two wading along the shallows in search of soft-shelled crabs. The sun sinking behind him was reflected by the water about

his feet. Struck by the novelty of the lighting I waded in below him until his shadow fell upon my camera, and then made an exposure. The result was a silhouette. Since that time I have been making photographic silhouettes at every opportunity and they are now a much valued part of my collection. The first attempt resulted in such a success that a few evenings later my younger brother and I, in order to get the sky for a background, climbed to the top of the steepest hill within a mile of our camp and tried it again. He stood in the attitude of a hunter, with knapsack on back and rifle ready for instant use, waiting attentively for the game to break cover. That was in the summer of 1915. A few months ago he posed for me again, but this time the little hunting rifle had been replaced by a hoe and I secured the picture shown on page 10.

Not only people, however, but animals and often landscapes lend themselves to this method of pictorial rendering.

Landscape silhouettes can easily be obtained by photographing some prominent landscape feature that is clearly outlined against the sky, and partial silhouettes, which record detail in cloud forms, can be made when the background consists of masses of clouds that show pronounced lights and shadows.



TOWER AND TREE

Made with a Kodak, by George A. Cribbs

The composition of silhouettes does not differ materially from that of other kinds of pictures. There should always be one prominent object in the picture which immediately attracts and holds the attention and to which all else is subordinated. Silhouettes of people and animals should naturally be in profile in order to show the outlines of the figures.

When making silhouettes we

photograph the shaded instead of the lighted side of the subject and give a short exposure so that only the light beyond the subject will be recorded in the negative. Good sunset cloud effects can sometimes be secured as a background, great banks of clouds being much preferable to smaller broken ones. Under ordinary conditions when the sky is clear and *the sun is low enough to cast the shadow of the subject upon the camera*, I have found that the use of stop 16 and an exposure of $\frac{1}{100}$ of a second

has brought the best results. When the sun is behind banks of clouds, I usually give an exposure of $\frac{1}{25}$ th of a second with stop 16.



When we photograph objects silhouetted against the sky, the exposure that will give the silhouette effect will usually record the clouds, if any are present, so they will show in the print, when no color filter is used.



HOMEWARD

Made with a Kodak, by George A. Cribbs

TWILIGHT SILHOUETTES



COMPANIONS

1-25 second; stop, 8; just after a sunset

By going just inside a forest, at almost any hour in the summer time, we can make silhouette photographs of tree trunks and other objects that are near the edge of the forest, provided we have a bright sky for a background. This is due to the fact that the trees in a forest stand closely together and their foliage shuts out so much of the light from the sky that there is much less light in the forest than out in the open.

Wherever similar conditions prevail, that is, where a comparatively dimly lighted subject is outlined against a brightly lighted

background, silhouette photographs can be made, and these conditions can be found, not only in forests, but anywhere out on the open landscape at certain times of the day. These times are just before and also just after both sunrise and sunset, that is to say, in the two twilight periods of the day.

On page 8 Mr. Geo. A. Cribbs explains his method of making silhouettes shortly before sunset. Similar results can also be obtained shortly after sunrise.

Mr. Cribbs' silhouettes show the subject in relation to the background, producing effects that,

especially in outdoor work, are very pleasing. This result can usually be obtained by developing the negatives in the ordinary way—twenty minutes at sixty-five degrees in the tank with one tank powder and then printing them on Special Velox.

Some workers may also desire to make silhouettes in which the subject bears no relation to the background. This can be done by making negatives that are so contrasty that the background in the print will be represented only by the paper on which the print is made, and the easiest way of obtaining them is to photograph the subject with the brightest part of the sky for a background, at a time when the contrast between the subject and the background is extreme.

The most extreme contrast between the light in the sky and the light on the landscape exists a few

minutes before sunrise and a few minutes after sunset, (in the true twilight period) for then the direct rays of the sun brightly illuminate the sky but do not reach the landscape. Negatives from which white background silhouettes are to be made should be developed in the tank for twenty minutes at sixty-five degrees with *two* tank powders and the prints should be made on Contrast Velox.

When the sun is just below the horizon use stop 8 (f.11) and give an exposure of $\frac{1}{25}$ th of a second. With cameras that have neither of these stop markings, give the same snapshot exposure you would give for a landscape picture at noon-time. No reliable rule can be given for exposures that are made more than fifteen minutes before sunrise or more than fifteen minutes after sunset as the strength of the light then changes rapidly.



AN INTRODUCTION
Made with No. 2C Folding Brownie



AN ALPINE SENTINEL
Made with No. 3A Folding Kodak



PYRAMIDS OF GIZEH

Made with No. 3A Folding Kodak

KEEP AN ALBUM

BY B. B. SNOWDEN

By all means keep your photographs in an album, for an album is the best possible place in which to file a collection of prints. Batches of prints that are left in drawers or between the leaves of books, or perhaps behind some picture on the mantel, are always in danger of getting lost or destroyed, so that they cannot be found when wanted. Sooner or later many of them are sure to disappear. And the exasperating search for prints that are wanted of a sudden—who has not known it?

If you keep a Kodak album, each new picture can be given a permanent place therein. The prints will be kept fresh-looking, protected from dust and careless handling; they will be kept in

order; and under each can be inscribed a memorandum of time and place, or such other data as you may wish to have for reference. Against the lapse of time and press of other matters, an easily referred-to library of the pictures you have made, is a lasting satisfaction.

Not only that, but the album will also provide the most convenient and satisfactory method for displaying your results *in toto*. It will interest your friends far more than a batch of miscellaneous prints. There is no doubt of this. One's eyes can roam comfortably through the pages of an album, pausing at will or passing on, but one's attention must be concentrated on each loose print that must be handled and examined

individually. Not only is the tax upon the attention greater and is likely to be tiring when loose prints are examined, but the pictures are not seen at their best, nor is there the same opportunity for appropriate groupings.

A Kodak album is an interesting and a friendly book; it is interesting alike to the maker and to his friends, and it is, moreover, a book that will be treasured more and more as the months and years go by.



CHRIST
CHURCH
CATHEDRAL,
OXFORD

*Made
with No. 3-A
Folding
Kodak*

A VACATION SEXTETTE

BEING
A
KODAK
STORY
WITHOUT
WORDS

(WITH A LITTLE
MYSTERY AS TO
WHO PHOTO-
GRAPHED THE
SIX)







FIG. 1

PHOTOGRAPHING MOVING OBJECTS

A PICTURE of a rapidly moving object should emphasize the idea that the object was moving at the time the picture was made. This idea is conveyed in different ways by pictures of different kinds of objects.

For example, in a picture of a speeding automobile the effect of movement is produced, not in the image of the machine itself, but by dust from the wheels, the position of the occupants, or the flutter of their clothing.

On the other hand, in the case of animals movement is obvious, but degrees of speed are suggested by the particular position of their legs at the instant of exposure.

Very often a photograph of rapid animal action produces a false impression of the actual fact by reason of miscalculation or accident. The complete truth of the picture does not remove this impression of

falseness, because the eye sees consecutive motion and never (in the case of action) a single instant's position.

Thus, Fig. 1 of our illustrations shows a trotting horse photographed at the moment when one leg was in a vertical position. The first impression this picture conveys is that the horse was standing, with one fore leg raised. Though a closer inspection dispels this idea, because it shows us that one hind foot was also off the ground and the fetlock joint above all four feet was in action, yet, judged as a picture that is intended to convey the idea that the horse was trotting, it must be regarded as a failure, and the reason why it must be so regarded is not because it is false to fact but to the eye's usual impression.

In Fig. 2, not one of the horse's legs is in a vertical position. We



FIG. 2

know that a horse could not stand still with legs in the positions shown, and it is this fact, which is impressed on us at first glance, that tells us the horse must have been moving when the picture was made. These two pictures indicate clearly what we should avoid and what we should seek to record in our pictures of moving animals, and, by covering the picture of the horse and then examining the picture of the carriage we will see what to avoid when photographing inanimate moving objects. Though this carriage was moving rapidly the picture offers no evidence of the fact. Had the road been dusty the flying dust would have made evident the fact that the carriage was moving.

The time to make exposures for moving objects is at the instant the image looks right in the finder. Always photograph rapidly moving objects in bright sunlight, with

the sun shining on the side of the object that faces the lens.

The most pleasing pictures of moving objects are usually obtained, not when they are passing broadside to the camera, but when they are approaching at about an angle of 45 degrees. In photographing objects that are moving at a speed not exceeding twenty miles an hour, the writer makes the exposure when they are not nearer than 100 feet and, instead of bothering with calculations, prefers to rely on the latitude of Eastman film and give the following exposures with the kinds of lenses mentioned:

With a single lens and the largest stop, an ordinary snapshot.

With a rectilinear, the largest stop and a $\frac{1}{50}$ second shutter speed.

With an $f.6.3$ anastigmat, the largest stop and a $\frac{1}{100}$ second shutter speed.

With an $f.4.5$ anastigmat, stop $f.5.6$ and a $\frac{1}{200}$ second shutter speed.



FIG. 1

Snapshot with No. 2C Brownie; 5 P. M., July; cloudy, bright

CLOUDY DAY SNAPSHOTS

THE only time when it is possible to photograph an incident is during its occurrence, and it often happens, especially when traveling, that the only time we can make a picture of a scene is shortly after we discover it.

Since the majority of the subjects we picture out of doors, especially if we consider those that are fifty feet or farther from the camera, can be successfully photographed with a snapshot exposure on cloudy as well as on sunny days we should never hesitate to make a snapshot merely because the sun is not shining at the time.

Our illustrations show the results of making snapshots on cloudy days, with a single lens (only single lenses cannot be seen when the shutter is closed), a rectilinear, an $f.6.3$ anastigmat and an $f.4.5$ anastigmat. In choosing the subjects

for these illustrations we selected buildings in preference to landscapes in order more clearly to show how detail can be recorded on Eastman film with a $\frac{1}{25}$ second exposure, through the largest lens stop, when there is no sunshine.

Cloudy day snapshots can be successfully made with single lenses at any time later than $2\frac{1}{2}$ hours after sunrise and earlier than $2\frac{1}{2}$ hours before sunset on days that are cloudy bright—not cloudy dull—provided the subject is out in the open—not shaded by trees (see Fig. 1), and receives the unobstructed light from the sky.

Fig. 2 demonstrates what can be done with a rectilinear lens as early as 7.15 in the morning, from May to August, when no sun is shining. A $\frac{1}{25}$ second snapshot, with the largest stop, recorded full detail throughout the picture. The house at the extreme right is of brick,



FIG. 2

1-25 second; largest stop on rectilinear lens; 7.15 A. M., May; cloudy

painted dark red. Had a snapshot of this subject been made with a single lens the negative would have been under-exposed.

The detail shown in Fig. 3, which was made with a $\frac{1}{25}$ second exposure when the largest stop on an $f.6.3$ anastigmat lens was used,



FIG. 3

1-25 second; stop, $f.6.3$; 5.30 P. M., May; cloudy, dull

could not have been secured with a single lens. A rectilinear would have recorded the strong lights and the halftones but not the darker shadow detail. The data under this picture shows that with an $f.6.3$ lens we can make snapshots as late as 5.30 P.M. in summer, on a cloudy day.

The building shown in Fig. 4 is painted green, which is photographically a dark color. The trees before it are not less than sixty feet high. Had the sun been shining at the hour it was made—5 P. M.—the greater part of the building would have been in shadow. The light was so weak that even when an $f.4.5$ anastigmat was used with its largest stop the image on the focusing screen of the

Graflex, which was used in this case, was so poorly lighted that it was difficult to focus.

Such a subject, under such conditions can only be successfully photographed with a $\frac{1}{25}$ second exposure when an $f.4.5$ lens is used, wide open.

From what has been demonstrated it is evident that one need not wait for sunshine in order to make snapshots out of doors. While sunshine adds brilliancy, that is, contrast to the lighting of all subjects in which objects that cast shadows appear, the absence of sunshine, which reduces contrast and insures a soft lighting, is often an advantage, especially when there are pronounced light and dark tones in the subject.



FIG. 4

1.25 second; stop, $f.4.5$; 5 P. M., August; cloudy, dull

THE MOST WONDERFUL SENSITIVE MATERIAL

BY DR. C. E. K. MEES

KODAK PARK is the home of sensitive materials. From it come the plates for the professional photographer, the papers for the printer, the films for the Kodak and the Brownie, and last, but by no means least, the miles of ribbon-like film for the "movies." But the oldest and most marvelous sensitive material in the world is not made in Kodak Park, and the chemists of the Research Laboratory have no idea of its composition.

At the back of every eye is a microscopic laboratory, and in that tiny gland, by processes of which we have at present no conception, the body manufactures the material whose change under the action of light gives rise to the sensation of sight.

But even if they have no idea of the nature of this light sensitive substance that is so important to us, the investigators of the Research Laboratory have been able to measure some of its properties and to find out how it behaves under different conditions. Apparently it is produced at such a rate that the amount of it present on the "retina," which is the sensitive surface at the back of the eye, is adjusted to the brightness of the illumination. In bright light the substance is destroyed as fast as it is formed, so that the amount present is small and the sensitiveness of the eye is low, but when the light is faint the sensitive substance is produced more quickly than it is destroyed so that the sensitiveness

of the eye increases until another balance between destruction and production is reached.

But these adjustments of the sensitiveness of the eye do not take place instantaneously. When we come out of a dark room into the sunlight our eyes are at a high level of sensitiveness and take some time to adjust themselves to the bright light so that at first the strong light is painful. In the same way an automobile headlight which is barely noticeable in the daytime appears glaringly bright at night. On the other hand when we first enter a dark room we can see nothing, but after we have remained there for a few minutes we "get our eyes," as the photographers say, and then can see quite well in the semi-obscurity of the red light. The sensitiveness of the eye goes on growing for a long time so that in the very dark rooms in which panchromatic materials are handled it is more than thirty minutes before the maximum of sensitiveness is reached.

For each level of brightness there is a corresponding sensitiveness for the average eye.

The eye can detect very small amounts of light. In the course of its work on the eye, the Laboratory has recently measured the smallest amount of light which can be detected, and it appears that on a dark night the average eye could just see the light from a candle at a distance of twenty miles if it had been rested until it was in the acutest state of sensitiveness and

if the air was sufficiently uniform to produce no disturbance of the rays at that distance.

In photographic dark rooms it is of importance that the lighting should be arranged so that the eye works at the greatest advantage. Owing to the sensitiveness of photographic materials, we can never use as much light as is necessary to produce the best seeing conditions and, therefore, the eye must be maintained at its condition of maximum sensitiveness by allowing time for its sensitiveness to grow, and by avoiding the presence of any bright spots, such as lamps, in the field of vision. This latter condition is best fulfilled by the use of reflected light in the dark room, when the red lamp is hung above a reflector, from the ceiling, so that its light is reflected back again into the room, thus providing a soft, diffused illumination without any bright light, which would tend to lower the sensitiveness of the eye, being visible.

We may divide the different levels of brightness to which our eyes are exposed in everyday life, into four groups as follows:

Average Brightness

Bright Sunlight . . .	1000
Interiors in the Daytime	10
Interiors at Night with	
Artificial Light . . .	1/10
Out of doors at Night..	1/1000

So that the bright sunlight is one million times brighter than a road in the country on a moonless night, and yet we can see at night out of doors and we are not blinded by the sunlight.

The sensitiveness of the eye, in fact, is not fixed, as is the sensitiveness of a film or a printing paper,

but changes with the brightness of the light. It is as if we had a film which could automatically adjust its sensitiveness to the exposure, so that if the light were bad it could become more sensitive than the most rapid film made, while when exposed to full sunlight it could adjust itself to the intensity until it became less sensitive than the slowest photographic paper.

Though we cannot see equally well under all conditions, there is practically no difference in our ability to see within a range of brightness of 1000 (which represents bright sunlight) to 1 (which represents a very well-lighted interior at night), but above and below these limits we find it more difficult to distinguish fine shades. That is why when we are in an ordinary lighted room in the daytime, we always take anything to the window or a light when we want to examine it closely.

If the brightness is above the upper limit given it becomes painful to the eye and the eye cannot adapt itself to it; this condition is called that of "glare." Long continued glaring light, such as that produced by sunlight on snow, will produce blindness.

Strain and difficulty also arise if the field of vision includes too great a contrast between the darkest and brightest portions. This may be due to the retina attempting to accommodate itself to one level of brightness at one point and to another at another point, like the chameleon who turned red when put on a red cloth and green on a green cloth but died of vexation when placed on a Scotch plaid.



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In an emergency the Kodak powders may be used with Premo films by an increase of 50% in the length of development (30 minutes instead of 20 minutes at 65° Fahr.), but the safe and sure way is to use the developer that is made to fit the product. Premo powders for Premo films.



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TO OUR READERS

YOU read KODAKERY because you are interested in making pictures. We publish KODAKERY because we wish to assist you in making good and then still better pictures.

If you are a beginner in photography KODAKERY will start you right—will tell you how to obtain specific results without experimenting, thus saving you both time and money.

If you are an advanced worker KODAKERY will add to your knowledge of photography, thus assisting you in advancing still farther.

Many months ago we began inviting our readers to submit their photographic problems to us for solution. We requested them to send us negatives and prints for criticism and offered to furnish, by correspondence, information regarding all amateur photographic processes—*these services, being rendered free of charge.*

KODAKERY correspondence has steadily grown until it has become an important educational factor. Many of our readers have informed us that our answers to their questions, our criticisms and our suggestions have proven of great help to them.

We have available, and place at your disposal, the knowledge many specialists have acquired from laboratory research. We also are in possession of the knowledge gained by a host of practical workers whose labors have been confined exclusively to photography for many years.

If you wish to profit from this knowledge, correspond with us freely. We will take pleasure in answering your letters.

When sending prints for criticism, be sure also to send the negatives from which the prints were made. We wish to tell you whether the negatives were rightly or wrongly exposed, rightly or wrongly developed, and whether the prints were rightly or wrongly made. Give complete data, when possible, regarding each negative and print. We wish to know the month, the time of day, the condition of light when the exposure was made, the stop and shutter speed used, whether the negative was developed in the tank or in the tray and the kind of developer used. We also wish to know the name and grade of paper on which the print was made. Both negatives and prints will, of course, be promptly returned.

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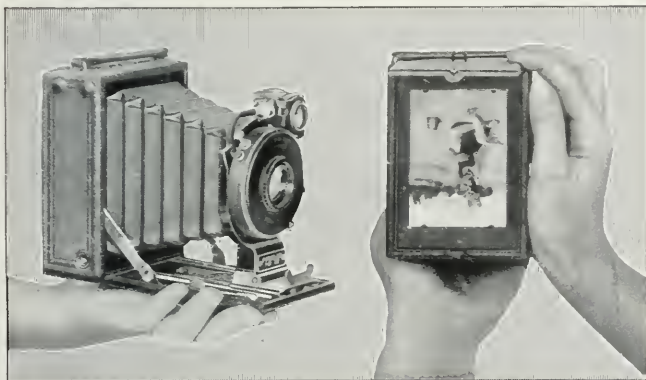
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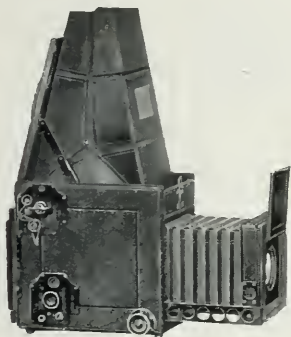
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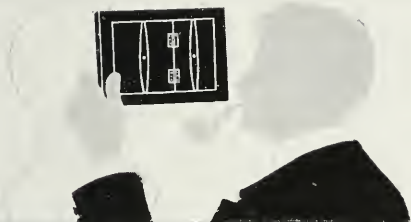
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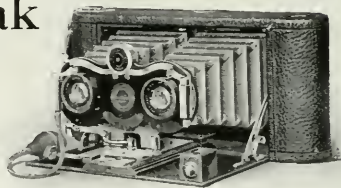
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A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



FEBRUARY 1918

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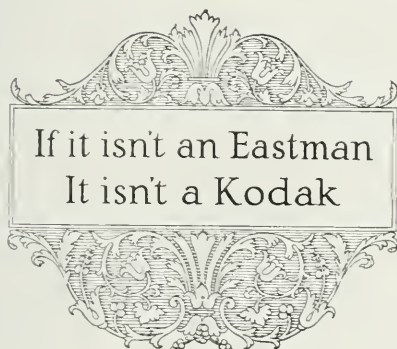
The Kodak Color Filter

A valuable aid when photographing sunlit snow scenes, especially those embracing snow-covered roofs and trees.

The intensity of the blue light is reduced and time given for the detail in the shadows to be recorded on the film.

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It isn't a Kodak



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Made with No. 3A Folding Kodak



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. V

FEBRUARY, 1918

No. 4



FIG. 1

FOREGROUND IN SNOW SCENES

No landscape picture, not even a picture of a snow-covered landscape, is pictorially pleasing when it has a blank white foreground. By remembering this fact and by always getting detail in the foreground of our pictures of snow scenes we will find it as

easy to make good outdoor pictures in winter as in summer.

Newly fallen snow shows no detail, and when there are neither shadows on the snow nor objects in the foreground to furnish detail we should create some foreground detail before we photograph the



FIG. 2

scene. This can always be done by tramping a path through the snow, and, when the snow is deep enough so that shadows can be seen in footprints the lights and shadows in these footprint depressions will often lend even more interest to the foreground than the lines of a path.

Plenty of foreground detail, such as is shown in Fig. 3 of our illustrations, can be found in snow scenes along country roads, beside the banks of streams and in fertile waste places where the stalks of tall weeds project above the snow.



FIG. 3

At the beginning and also near the close of winter the waterways are open when the ground is covered with snow. Under these

conditions such a foreground as is shown in Fig. 1 can be obtained by slightly raising and lowering the camera until it is at such a height above the ground that the image in the finder shows the water darker than the snow.

When the winter advances and the snow in roadways has been disturbed by traffic, the sun shining across the ridges of the snow will cast shadows that always add to the beauty of a snow-covered landscape. By covering the foreground of Fig. 2 with a piece of white paper and then comparing the effect obtained with the foreground covered and uncovered we will appreciate what foreground

detail adds to the pictorial value of a snow scene.

While interesting pictures of snow scenes can be made on cloudy as well as on sunny days the most brilliant pictures can always be made when the sun casts long shadows across the foreground.

An exposure of $\frac{1}{50}$ of a second, with stop 16, when the sun is shining, will be ample for recording the foreground detail in snow scenes. When using a camera that has no stop marked 16 make a snapshot with the next smaller stop than the one you use for making summer landscape pictures.



AN ALPINE PATROL
Made with No. 3 Folding Kodak



BRINGING UP A TANK AT THIEPVAL

LIFE "OVER THERE"

BY ALBERT CRANE WALLACE

Illustrated from British Official Photographs taken on the Western Front

THOSE words "Over There" have begun to have a wonderful significance for all the world. I have no doubt they have an equivalent for them in Europe, in Persia, and Egypt, and Turkey and Russia.

They mean that place beyond, where the great drama is being enacted. In America we think of that arena as Belgium and France—not forgetting those stages of action farther away.

"Over There" their thoughts turn back. To the men in the trenches "Over There" is back in the home town. When they see the Kodak or the movie camera they know where the pictures are likely to go.

Very often in war front photographs you get a glimpse of that cordial recognition that is given to the camera as of a friendly onlooker. Very often, too, you find that the men are too busy in their grim business to give much attention to onlookers, so that the camera has no trouble in getting them in their natural groups and relations. Indeed, the handling of big guns or torpedoes or "tanks" usually requires concentrated attention, even when the action is not that of actual conflict.

The collection of official photographs accompanying these words of mine shows a curious diversity of situations.



INDIAN TROOPS AT GAS MASK DRILL

One of the most impressive, I think, is that of the bow of the battleship plowing the waters of the North Sea toward sundown. Surely there is a deep solemnity in this simple picture of a momentous fact.

There is something dramatic in the discharge of the great gun as shown in the picture at the top of page 9. Notice the man in the foreground holding his fingers to his ears. Unlike his companions, who are seasoned veterans, he has not yet become accustomed to the thunderous voice of the gun.

There is a contrast in that trench scene on page 10, showing the advent of a news sheet. A still greater contrast in that sunny scene on the river with the fish poles in action.

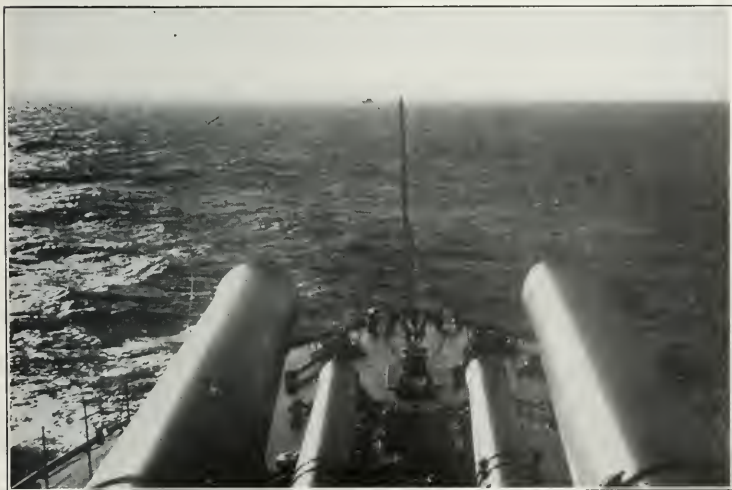
Who would not wish that the fishing may have been good on that day?

Certainly the most trivial form of relaxation must feel good to a man who has spent hours in a trench waiting impatiently for the order to go "over the top."

To me a picture at once grotesque and pathetic is that of the Indian soldiers at their gas mask drill. These brown men from far India, wearing the head-cloth of which no military theories have been permitted to rob them, somehow look more fantastic in the hideous masks than any other soldier might be expected to look. Nothing could more vividly illustrate the extraordinary picturesqueness of this Great War.



AT THE MOMENT OF FIRING A BIG GUN



EVENING ON THE NORTH SEA

And yet every picture tells us at the same time that behind the masks of all wars, great and small, are plain men—that humanity is at stake. It is the Kodak's dispassionate glimpse of the faces of men that reminds us that engines may change but that humanity still has its old needs and

its old longings. All theories of war and all theories of peace must take this fact into account. Most of the world's great mistakes are made in forgetfulness of simple truths about the human heart.

Let us hope that this most photographed of all wars may be the last of all!



WHEN SNOWFLAKES CLING TO TREES

Try stop 16, $\frac{1}{25}$ second, in bright sunshine, with a Kodak Color Filter, for trees that are loaded with fleecy snow.



READING THE NEWS IN THE TRENCHES 1,000 YARDS
FROM THE ENEMY



ABOVE,
A DAY'S
FISHING

BELOW,
LAUNCHING
A TOR-
PEDO



TRIMMING THE PRINT

BY C. HAZEN TRAYVOR

First Article*Full Size of Image on Film*

WHEN an artist makes a sketch of a scene or a person he leaves out some things in order to emphasize some other things. A novelist does not give a conversation the way a stenographer would give it.

The difference between art and mere record is that art emphasizes. We come here to the difference between "seeing" and "noticing." The eye really sees everything within a given range. It is the mind that *notices*. Noticing is selecting.

In photography we select by position; we emphasize by lighting or selection of lighting—and by what we *leave out*. We leave out much by the position of the camera. In a great number of

cases we carry the leaving out a step further by the trimming of the print.

The edge of a print is really its frame, and in a large number of cases we may really trim our picture while we make it by studying the composition in the finder. This is an ideal method, for by this means we get full picture quality out of every bit of our film.

But it seldom is possible to avoid the need for trimming the print, for carrying *selection* and *emphasis* further than it is usually convenient or possible to



By trimming Right Side of Print space in Front of Figure seems relatively greater



*Figure Panelled, but
Placed Too Far
to Left*

who is portrayed in a walking attitude, will appear to have just fully entered, instead of being about to pass out of, the field of view. Then we may emphasize the girl's figure by making a panel—not by trimming the print so the figure will be too far to the left as in the first picture on this page, but with more space in front of the figure as in the picture opposite.

Just to show how the amount of space over a figure may affect our impression of the height of a figure, I have trimmed the third picture.



*Figure Panelled in Right
Position*

carry them in the making of the negative.

Let me take, in this first article, two examples. The first, of which a print from the whole negative is shown at the top of page 12, begins by being an excellent print. We might call it "The Girl in the Garden." What may we do to carry it further? We may improve it somewhat by trimming the right side of the print to give the greater amount of space in front of the figure, so that the girl,



*Top trimmed further to
increase Effect of Tall-
ness in Figure*

at bottom of page, considerably at the top. Notice that this print, taken by itself, would make the figure seem much taller (if this happened to be desired) than one with more space above. This point often becomes very important in the case of portraits.

The full size picture of the child at the top of page 14, which shows all that the negative contains, starts with the handicap that part of the right foot is cut off. This complicates the



trimming. If we begin by trimming at the top and bottom we reduce the amount of meaningless background (such solid black backgrounds should always be avoided in portrait work) without touching the question of the foot. Personally I should prefer cutting off something on both sides, leaving enough of the right shoe to show it was there and emphasizing the face and character of the child by giving the important parts of the image a larger share of the total space. This treatment is shown in the print on page 15.

The right and wrong of such things is a matter of taste—a

*On the left, the Untrimmed Print.
Below, the Print Cut Top and Bottom.*





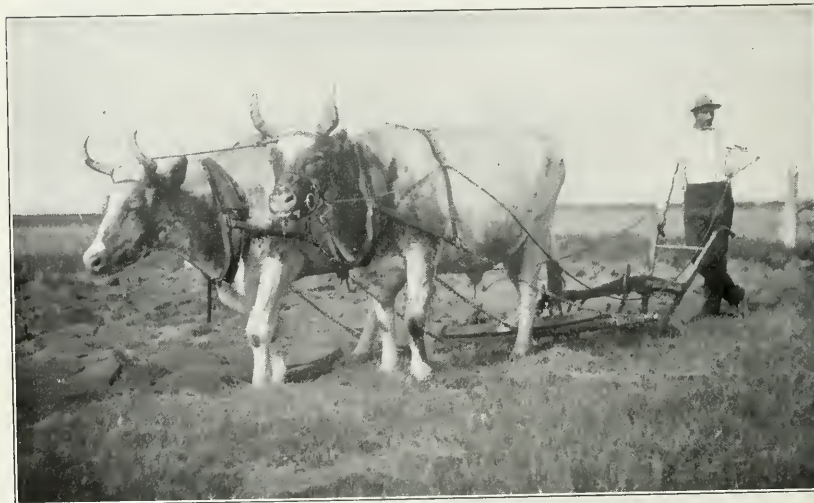
Print Cut on Four Sides, Diminishing Area of Background to Accentuate the Portrait

matter of the point you wish to make. A picture *says* things to the eye, and my point is that you can make it say different things by the way you frame your negative in making it or frame the picture by trimming after you have made it—in other words, that *leaving out* is a very important part of the em-

phasis of the thing said, whether it be in a speech or in a picture.



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Fitted with three sets of lenses with which three different sized pictures are made simultaneously

THE USE OF PHOTOGRAPHY IN ASTRONOMY

BY DR. C. E. K. MEES

To most people the mention of an astronomer brings up the picture of an elderly man gazing steadfastly for long hours through his telescope at the sky. A fine night in an observatory will certainly find the observer with his eye fixed to the eye-piece of his telescope, but it is highly improb-

able that on a fine night the astronomer will be using the telescope for visual examination. Instead we shall find the astronomer looking through the finder, the auxiliary telescope attached to the main instrument, which is used for keeping the great tube pointed at the desired part of the sky and for



GREAT NEBULA IN ANDROMEDA, SEPTEMBER 18, 1901

Exposure, 6 hours

compensating the errors of the driving clock which is designed to keep the telescope pointed at the same star in spite of the rotation of the earth.

If a perfect clock could be made the astronomer would not need to watch the stars at all, for nowadays observing is done by means of a photographic plate on which the telescope forms its image and the only use of the observer is to point the telescope at the requisite part of the sky and to hold it there, compensating for the small errors which are unavoidable in the mechanism of any clock.

Generally, the photographs of the stars are made through the big

telescope itself, the eye-piece being replaced by a holder for a photographic plate so that the star images formed by the objective of the telescope fall directly upon the plate, but with such an arrangement only a very small part of the sky can be photographed at one time and in order to get a larger field big photographic lenses are used mounted with their cameras alongside the telescope so that they are kept directed by the driving clock and the observation of the astronomer at the telescope.

The real work of observation commences after the plates have been developed and dried, when the negatives are examined and

compared with plates taken at different times. The study of the changes which are seen enable the astronomers to form their ideas as to the movements and the structure of the stellar universe.

Perhaps, however, the most important use of the photographic plate in astronomy is in the production and preservation of records of the present positions of the stars for examination in the future.

One of the most ambitious programs of work that has ever been arranged was that of the production of the great astrographic chart, or map of all the stars in the sky, on which the observatories of all nations have been engaged for many years. The purpose of this chart is to provide an accurate atlas of the stars as they are at the present time so that in ages to come their movements can be studied.

The stars appear to move very slowly, but in reality the stars move with great velocity; many stars are traveling five hundred million miles a year, five times as far as from the earth to the sun, but the distance of the stars is almost inconceivably great. In order to measure the distance of the stars the astronomer has had to invent a special unit and since the mile is far too small to get any idea of such a distance, the unit taken is the distance which light can travel in a year. Light travels about 186,000 miles in a second so that in a year a ray of light can travel six thousand billion miles and this vast distance, which is called a "light-year," is used as a unit to measure the distance of the stars.

The nearest stars are about eight light-years away, so that we can see these stars, not as they are to-day, but as they were eight years ago; but these are the nearest stars, and we know that we are seeing many stars by light which left them before Napoleon's time, while the light which is reaching us now from the furthest stars of the distance of which we can form any good idea started before Columbus discovered America, and many stars are at such distances that we are quite unable to form any accurate idea of what it can be.

With objects at such an enormous distance even the most tremendous changes take much time to become visible. Eight years ago a new star appeared in the heavens, that is to say, its light reached us eight years ago. The star itself may have been formed long ago, perhaps by the collision of two large stars, but eight years ago we first saw its light, which had been traveling to us since the formation of the star. That star was in an area of the sky which apparently contains some material, either gas or small particles like those which we see as shooting stars, because there is a little light visible around the new star, and in the last eight years that light has been spreading. The astronomers think that what we see is the light spreading out from the new star through space and lighting up the small particles of matter which reflect it to us just as the moon reflects the sun light. From this we can get some idea of the vast size of the universe of which we are part, since, although the



DANIEL'S COMET, SEPTEMBER 8, 1907
Showing the Comet Among the Clouds

light wave started eight years ago and must have moved over some fifty thousand billion miles in that time, yet the whole area of lighted material is still too small to be seen in any but the most powerful telescope.

With such vast distances and long periods of time mortal man must feel that life is not long enough to study the changes which go on in the stellar universe, but by means of photography he can

store up his observations of to-day for the study of future generations of men so that the discoveries of the future are dependent on the star negatives made by the astronomer-photographer of the present day.

These negatives are made with the greatest care; the photographic materials which are used are specially selected and studied and as great attention is paid to the photographic observations as

to the design and construction of the telescope itself.

In order to improve the photographic materials used in astronomy the Eastman Kodak Company through its Research Laboratory is collaborating with many of the observatories of the world. In this Laboratory a skilled astronomer, with many years' experience in photographic observation, is investigating the properties of different kinds of photographic materials with a view to suggesting means by which improved materials can be made available for the use of the astronomer, and it is not too much to say that astronomers regard such research on photographic materials as of equal import-

ance with their own work on astronomical methods and apparatus.



Prints should be developed for the length of time the instruction sheet recommends for the grade of paper used. This insures correct development.

If a correctly developed print is too dark it was exposed to the printing light too long. If it is too light it was not printed long enough.

To obtain the best prints we must adjust the printing time to fit the fixed time of development.



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A QUIET HOUR IN THE TRENCHES
Made with No. 3A Folding Kodak, by Merle LaVoy

A SAFEGUARD AGAINST DOUBLE EXPOSURES

THE first and most valued feature of the Autographic Kodak is the provision it makes for dating every negative, but it also protects us against double exposures. Before Kodaks were equipped with the autographic feature the only way we could be sure of avoiding double exposures, with any kind or make of roll film camera, was to reel the film to the next number as soon as an exposure had been made. But sometimes we neglected to do this and unintentionally made two exposures on the same film, and, once in a while, when in doubt whether we had reeled the film after the last exposure, we turned it to the next number just to be sure we would not expose the same film twice. If we forgot to reel the film and made a double exposure we lost two pictures and spoiled one film, and, if we did reel it but forgot the fact

and then turned it to the next number to be sure of avoiding a double exposure we also lost a film—the one that was not exposed.

Such experiences need never confront us if we use an Autographic Kodak. The autographic slot in the back of the Kodak enables us to write the record on the film—at the time, that is, immediately after the film has been exposed, and this is the time we always will write it, for this is the only time we can be sure of having the data we wish to record clearly in mind. Once the record has been written on the film no further thought need be given to the data—the record will disclose them when the film is developed.

Of course, after the record has been written and exposed to the light for a few moments, the film



PEACE TERMS

Made with No. 3A Folding Kodak

must be reeled to the next number, but—and here is how the autographic feature of the Kodak guards us against double exposures—in case you are in doubt and wish to *know* whether the film was or was not reeled to the next number, a glance in the autographic slot will tell you,—there is no guesswork about it. If there is writing on the red paper backing of the film then that film was ex-

posed, and if there is no writing the film was not exposed.

This feature of the Autographic Kodak, which safeguards us against making two exposures on one film, and also against having unexposed films in the roll after it is developed, is as valuable as the ability to write what we wish on the film. The autographic feature is more than a convenience, it is a money saver.



FOCUSING IMAGES IN MIRRORS

THE following article, which was published in the November, 1915, KODAKERY, is reprinted in answer to inquiries that are frequently received regarding the way to obtain sharp images of objects that are reflected in mirrors.

The rule for obtaining the correct focus applies to all kinds of mirrors, whether they consist of silvered glass, of metal or of water.

Suppose you place your camera ten feet from a mirror, in order to photograph the image it reflects, of an object that is fifteen feet from the mirror; at which distance mark on the focusing scale should the focusing indicator be placed?

The usual answer and the reason for this answer are, that since the image is seen in the mirror and the lens is ten feet from this image, the focus should be set at the ten-foot mark on the scale.

This answer is wrong and the reasoning is faulty, because a factor of primary importance has been overlooked. This factor is the distance from the eye to the point on which the eye is focused when looking at the image in the mirror. This point lies farther than the mirror from the eye.

To convince yourself of the cor-

rectness of this statement close one eye, then hold a small mirror extremely close to the other eye—so close that the edge of the mirror will touch the side of the nose. Try to focus the eye so you can obtain sharp images of the eyelids and eyelashes that are reflected by the mirror. You cannot do it. Now, without moving the mirror, glance at that part of it that reflects the images of objects that are, say, from 14 inches to an infinite distance from the mirror. The eye can focus them sharply.

This shows that in examining images seen in a reflector the focus is adjusted, not for the distance from the eye to the reflector, but for the distance from the eye to the reflector *plus* the distance from the reflector to the object.

As we have now considered all

the important factors that enter into the problem, the correct answer to the question in the opening paragraph of this article obviously is,—the focus of the lens should be set for 25 feet, which is the distance from the lens to the mirror plus

the distance from the mirror to the object whose image it reflects.

The rule, thus indicated, applies in all cases, no matter what the distance between the lens and the reflector or the reflector and the object may be.



JUGGLING
Made with a Graflex

FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published fifty-two months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed, and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

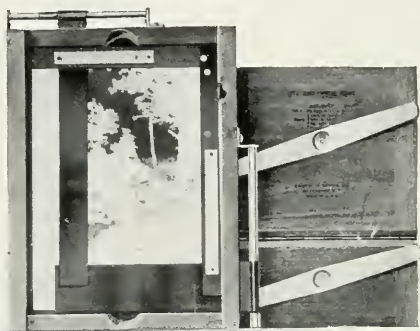
Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

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KODAK AUTO-MASK PRINTING FRAME

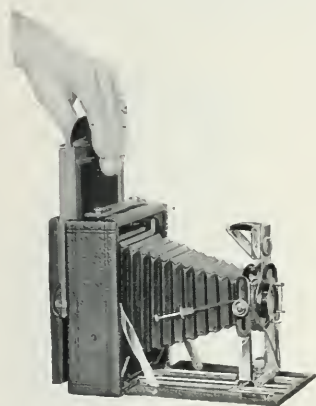
The negative is held in place while the paper is placed in position, making it simpler to operate than an ordinary printing frame. Moreover every print when properly trimmed will have a neat white border.

THE PRICE.

Kodak Auto-Mask Printing Frame - - \$1.25

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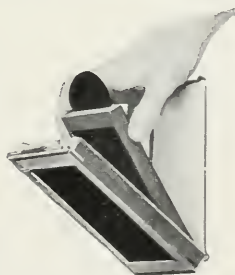
Accurately Focus the Picture in its Full Size Before Making the Exposure.



If direct focusing is not required, the lens is set on the Focusing Scale at the point indicating the estimated distance of the subject.

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Light*

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The Safelight with which it is fitted is specially tested for use with Kodak Film.

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You don't manipulate

VELOX

you *work* it.

It is a photographic paper
that fits every amateur negative.

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You and Your Kodak Can Help

Much as pictures mean to you, they mean more, infinitely more, to the soldier in camp or over-seas. Snap-shots of home scenes and home faces, tucked in between the pages of a newsy letter make "Back home" seem just around the corner of the company street—they are next best to a furlough.

Helpful organizations are doing a great work in looking after the physical comforts of our fighting men—but the "folks at home" are the ones who can keep them cheerful in mind and heart—you and your Kodak can help.

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KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



MARCH 1918

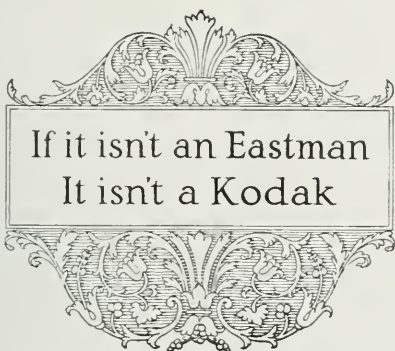
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SENTINELS OF THE NORTH
Made with a 3-A Kodak



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VOL. V

MARCH, 1918

No. 5



ON THE ROAD TO THE TRENCHES

THE SEAMY SIDE OF THE WAR

BY ALBERT CRANE WALLACE

Illustrated from British Official Photographs taken on the Western Front

THE tragedy side stands out at the first thought. And the heroic side is never to be doubted. We have seen, too, the comedy side—and a welcome spectacle that is.

But most of war sometimes

seems to be simply seamy—a cold, muddy, twisted, dirty, crowded, disordered business.

Pictures remind us of this very vividly. Pictures of the past told us of splendid, highly-colored charges, with flaunting banners.



DEVASTATION NEAR ZILLEBEKE

prancing horses and a gorgeous clash of steel.

Well, there are splendid charges to-day, but they are not the same. Great paintings yet to be made will show plunges "over the top" that will rival in heroic wonder anything ever depicted by art. But the dull average of the present long-drawn conflict is cruelly different. And the average is what the men at the front have to count upon day after day.

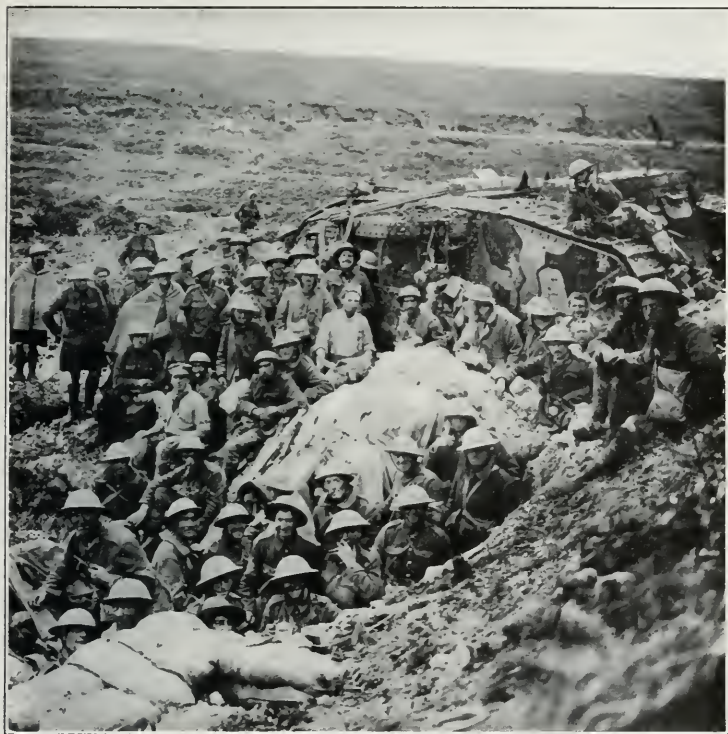
No words could make the sordid and bedraggled side of the war seem so vivid as the camera makes it. We may say, "The ground was muddy and punctured with treacherous holes," but the fallen horse of the picture speaks more vividly.

We may speak of a wet, grimy

day on the way to the front, but this picture of the wet and huddled troops has something sadden in it before which words fail. The appalling clutter of war is shown graphically enough in the scene depicting the resting troops on the wagon-filled road.

The terrible destructiveness of war is shown in two of the scenes accompanying this article; one, the vista near Zillebeke in which soldiers are seen gathering wood from a devastated grove of trees; the other, a dismantled German gun, representing a triumph of mechanical ingenuity now battered into uselessness.

The group of Tommies around the "tank" are, indeed, trying to be cheerful, though it has been a cold, wet day. The tank itself



WITH A "TANK" AT FLERS

surely is a grim and unbeautiful affair. Its ugliness has been an important factor. From the day of its first appearance its surly, bull-doggish, brutal look has been terrifying to the enemy. Fancy it crawling toward you in the half light of the early morning, spitting fire, smashing through barbed wire, over shell craters—crawling, crawling relentlessly with a swarm of fighters scurrying behind it!

There is something dramatic,

too, in the simple picture of the dressing station. Here in the wreck of a building has been contrived a shelter to be used as a half-way house to the hospitals. Hospitals cannot be very near the actual front, and there must be places where, with some reasonable shelter, wounded men can be carried for first aid treatment until the ambulances can get them further away from the scene of their calamity.

And so the camera lays bare the



A WET DAY ON THE WAY TO THE FRONT



A MANGLED GERMAN GUN

whole story of war's detail, the little things that constitute the commonplaces in the daily life of war, yet things that are big in their significance. Little things sometimes make big discomforts

and multiplied discomforts make the strain of life heavy. There is nothing "soft" in the soldier's game. The grind of waiting, alternated with the drudgery of things not spectacular or heroic, make very simple pleasures stand out by contrast.

One can't look at pictures like these without understanding why Tommy, *poilu* and Sammy enjoy the simplest kind of a meal, or the

roughest place to sleep, if only sleep may be had without rain or filth; why they can appreciate things the man at home never stops to appreciate; how they value that precious letter or com-



STRUGGLING THROUGH THE MUD HOLES

fort box from back home; why the Red Cross nurse, the kindly doctor and all the devoted helpers in the great cause look like ministering angels.

These pictures of war should serve a purpose with you and me. They should make us grateful—and make us work and give and remember. They should, incidentally, make us realize the hard work some men are doing with their cameras, in the face of danger, in all sorts of disagreeable conditions, in the presence of all sorts of photographic obstacles, in order that you and I may know what is happening "over there." It isn't a



A RED CROSS "DRESSING STATION"

pretty or a comfortable game these photographers play. I'm sure that some of them earn the right to honorable decorations quite as truly as those other men whose names are given to the world.



FIG. 1

PICTURING ICE FORMATIONS

SCENES that are similar to those shown in Figs. 1 and 2 of our illustrations can often be observed where thick ice forms along the shores of large bodies of deep water.

When the ice fields break and the blocks of ice are driven inshore by winds and waves picturesque effects are sure to be produced by the action of the water on the ice.

Fig. 1 is a pictorial rendering of



FIG. 2

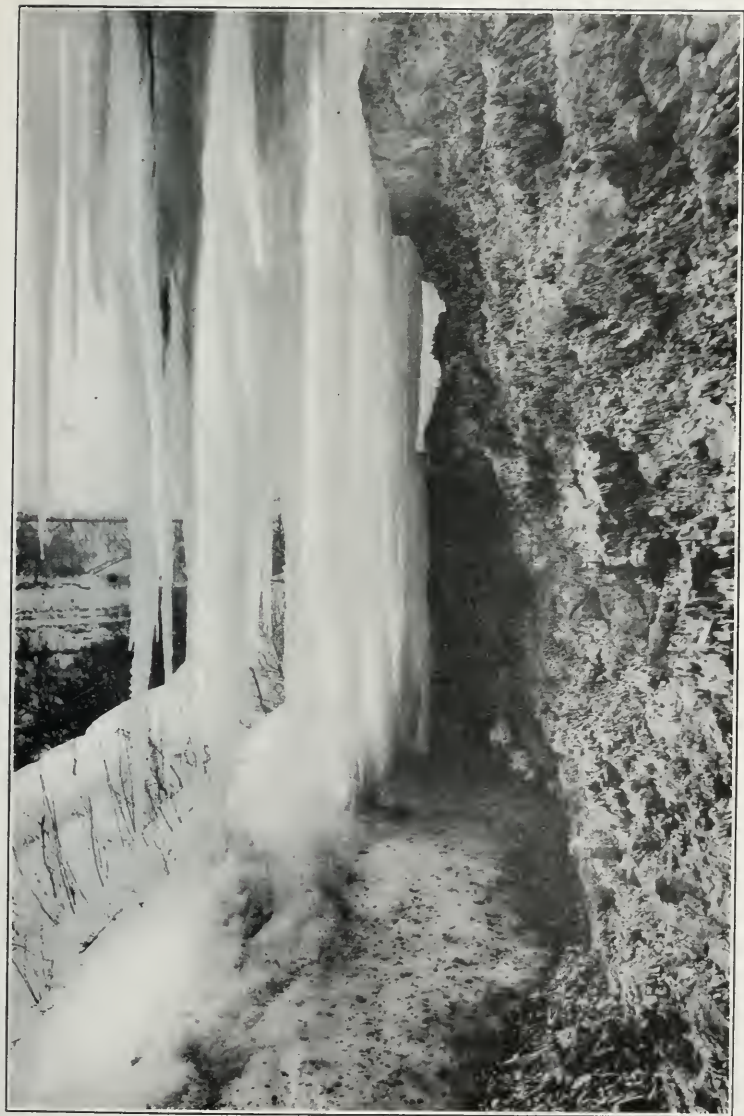


FIG. 3

a subject that consists solely of ice, water and sky. In this picture the ice promontory is the object of interest, and in order to make it the most conspicuous object in the picture it was necessary to record the shadows as well as the highlights on the ice. In photographing such subjects this can usually be done by selecting a point of view from which a side lighting is obtained, when the sun is shining brightly, and by using a color filter which will make the blue sky photograph darker than the parts of the ice on which the sun is shining so that the strongest lighted parts of the ice will be rendered lighter than anything else within the field of view.

For a subject of this kind we would recommend an exposure of $\frac{1}{25}$ of a second, through a Kodak Color Filter, with stop 16. With cameras that have no stop marked 16 a snapshot through a Kodak Color Filter, with the next to the largest stop, should be ample.

The negative should be developed for twenty minutes at sixty-five degrees in the tank and the print printed deep enough that only the highest lights will appear white in the picture.

Fig. 2 shows the result of photographing a similar subject, under similar conditions, by giving the same exposure with stop 32 (*f.22*) without a color filter.

While such pictures as Figs. 1 and 2 can only be obtained where high waves dash against the shore ice or large bodies of water, splendid pictures of icicles can be obtained wherever melting snow or ice drips from roofs or ledges

and freezes again soon after melting.

Fig. 3 is typical of what may be observed wherever water trickles over a precipice, or from overhanging ledges of rock after several days of alternate thawing and freezing. Giant icicles also form on the eaves of a building in freezing weather, when enough heat passes through the roof of the building to melt the snow that is on the roof.

In photographing these icicles be sure to select a time of day when the sun shines on any side of the icicle excepting the side that faces the lens. Give the same exposure you would give for a summer landscape with the next smaller stop than the one you use for summer landscape work.





FIG. 1—*Showing Print from the Full Negative*

FINDING PICTURES WITHIN A PICTURE

SOMETIMES when we look across an interesting expanse of landscape, that we have seen from the same point of view scores of times, we are surprised to find permanently fixed landscape objects that we never noticed before.

It is, probably, because we ordinarily view a landscape as a whole that we seldom notice any but its most prominent features and, when we do discover objects that we had previously overlooked, it is usually due to the fact that something has especially drawn our attention to those objects. It may be a change in the landscape color-

ing or it may be an unusual accent in lighting, such as is caused by sunbeams coming through small open spaces in clouds and placing a pronounced emphasis of light on an area that was inconspicuous when the entire landscape was more uniformly lighted.

In looking over pictures that we made of outdoor scenes we sometimes make similar discoveries when our attention happens to become concentrated on objects or groupings of objects that are so placed within the picture area that they make complete pictures in themselves, but which we did



FIG. 2



FIG. 3

not see as separate pictures at the time we photographed the subject.

Occasionally, as our illustrations demonstrate, even more than two pictures can be found within a picture. Fig. 1, printed on the preceding page, is reproduced from a print which shows all the negative contains, and in Fig. 1 are included all the pictures shown in Figs. 2, 3, 4, 5 and 6, each of which is a complete picture in itself.

All of these pictures were found in Fig. 1 by moving, separately, four pieces of cardboard, arranged in the



FIG. 4

form of an adjustable frame, up and down and right and left on the print until a picture was observed within the area not covered by the cardboard.

By cutting a mask of the size and shape required from a sheet of black paper, or from an Eastman Mask Chart which is accurately ruled for insuring straight lines and exact right angle corners, and placing this between the negative and the printing paper so that only the part of the nega-



FIG. 5

tive that is to be printed can be seen through the opening in the mask, white margin prints of a



FIG. 6

picture that is within a picture can be obtained.

It frequently happens that from the part of a negative that con-

tains such a picture, enlargements can be made that will reveal more than can plainly be seen in a contact print.

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A GAY TIME
IN HAY TIME

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THRILLS

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with
a
Graflex*



WINTER

IN AND AROUND

KODAK
HEIGHTS



PICTURES





IN THE SCOTTISH HIGHLANDS

Made with a Kodak

HOW TEMPERATURE AFFECTS DEVELOPMENT

MANY more under-developed negatives are sent to KODAKERY for criticism in winter than in summer. This is doubtless due to the fact that in winter the water used for mixing the developer is colder than in summer. Since a cold developer works more slowly than a warm one it will take longer to develop a film or plate at 55 degrees than at 65 degrees.

Unless we know the temperature of the developer we are using we cannot be sure of obtaining correctly developed negatives. This statement applies to both the tank and the tray methods of development.

Tank development is based on

the action of a developer of a given strength, for a given length of time, at a given temperature. Since in tank development we do not examine the negatives during development, we *must* know the temperature of the developer or we cannot know when to stop development. The length of time to develop in the tank, at all temperatures between 45 and 70 degrees, is stated in the instructions that are furnished with every Eastman film tank.

When we develop our negatives in a tray, and judge when to stop development by examining them before the dark room light, we cannot certainly tell when they



IN KEW GARDENS
Made with No. 2-A Brownie

are correctly developed unless the developer is always used at the same temperature, because a cold developer produces an image whose apparent density, when examined before the dark room light, is greater than the printing density of the finished negative. On the other hand, a warm developer produces an image whose apparent density before the dark room light is less than its printing density. The result is that even if we make no mistake in judging the apparent density during development, our tray-developed negatives are apt to be under-developed in winter and are equally apt to be over-developed in summer, unless we always use the developer at the same temperature.

Testing the temperature of water by dipping a finger in it is pure guess work. A wet finger does not tell the temperature. It only

tells how the water feels, and water at 65 degrees may feel warm in winter and cool in summer. The only way temperature can be accurately determined is by testing it with an accurate thermometer.

Eastman thermometers are made especially for photographic work and they are accurate.



A NORTH SEA FISHING BOAT
Made with Vest Pocket Kodak



FIG. 1—Print from Full Negative, described as representing a "Scene" rather than a "Picture"

TRIMMING THE PRINT

BY C. HAZEN TRAYVOR

Second Article

WHEN we look at a landscape it is quite likely that one point will interest us more than any other, or at least that the focus of our attention—attention is a focusing of the mind—will center at some one point.

To make a picture of a landscape means giving our negative this focal point. To make this emphasis at some one point we may make use of light and shade, but above all we must make use of lines. When you look down a street natural perspective does this concentrating for you—so far as the general form of the street is concerned. In a landscape it is neces-

sary to move to the point at which the lines in the resulting image "come to a head" somewhere. This is what constitutes the architecture of a picture.

Of course you are privileged to make simply a "scene"—to copy all the *facts* before you at any given point. But this is not making a picture. A picture is selection, emphasis, concentration. It is the difference between a shorthand report of a conversation and a novelist's selection of the essential, vivid telling points.

To emphasize by trimming the print is the principal means at hand after the negative has been



FIG. 2—*Sky and Foreground Space Reduced, and Print Trimmed on the Right to Concentrate Interest*



FIG. 3—*A Final Attempt to Get "Picture" Quality by Seeking a Single Point of Concentrated Interest*



FIG. 4—*Print from Full Negative, without "Composition," containing spaces significant to the "Scene," but not making a "Picture"*

made. If a picture is fully composed at the time the exposure is made no trimming will be necessary. If the negative is simply a quick gathering of certain facts there will probably be urgent need to trim, perhaps severely, to emphasize enough to make a true picture.

Take the example of the scene in Fig. 1. Here is a range of far distant mountains. To change this scene into a picture—a thing that might have been done by another choice of position—we must find a way of giving the eye a center of greatest interest, or at least a focal point of *structural* interest.

Fig. 2 shows an attempt to do this. The lines now begin to concentrate between the two points of land in the lake. But these two

strips of land are the same length. We do not wish a cart-wheel composition, for our composition must never betray itself. In Fig. 3 we have another attempt to find the picture in the scene. Attention now gathers on the nearer neck of land. We now have less *scene* and more *picture*—altogether by reason of what we have left out.

Fig. 4 shows another print from a full negative. The scene here is one that would form a good setting for many figures, or for one figure occupying a large enough proportion of the total space. If there were more interest in the sky, and we wished to tell a story of *loneliness*, it would, indeed, be possible to use a small figure in the midst of this scene. But this is not the purpose of the scene.



FIG. 5—*Print Trimmed to Reduce Spaces and Accentuate the Action*



FIG. 6—*Print Trimmed to give Full Value to the Action*

The story seems to be one of the cowboy figure and the horse and we may safely cut off some of the sky and part of the right-hand side of the picture as in Fig. 5. The cut on the right is particularly necessary since we should strive to have the greater space *in front* of the action rather than *behind* it. To cut more of the right would, however, hurt the interesting line of the hill.

To tell the story of man and horse, and to give them the utmost emphasis, using only enough of the scene to give the figures a setting, we may trim as in Fig. 6. To trim further than this would mean that we wished to tell of the man and

horse only—to give them 100 per cent. of attention. If the background were wholly uninteresting, if it had no meaning, we might do this. But the background in this case does have a meaning and lends something to the story of man and horse.

From these two examples—two good negatives having attractive elements—we may place before us some of the points to be considered in all trimming. It is all a question of what we wish to *say*. Art is *saying* something about nature. Science is examining and *reporting* nature. If we have an art purpose, a saying-something purpose, we consider it first in making the negative, when this is possible, and second in correcting our margin by trimming. The point is that “boiling down,” in a picture as in a speech, intensifies what is left. The amount of necessary trimming

is reduced by remembering this point at the time of making the negative.



HOLD THE CAMERA STEADY

WHEN making a snapshot we naturally hold the camera in the way that is easiest for us, and if our snapshot pictures prove sharp then our way of holding the camera is right for us, but if they are blurred all over then our way is not right and we should hold the camera in some other way.

A successful way for most people is to press the elbows against the body, hold the camera in both hands and press the finger release or the plunger of the cable release by *moving the thumb only*.



SNOW TIME

Made with No. 3A Folding Kodak



FIELD GUN ON THE VERDUN FRONT

*Made with a 3A Graflex, by Merle La Voy**Copyright by
Merle La Voy*

AIR BUBBLES IN TAP WATER

IN cities and villages that have water distributing systems it sometimes happens that the same faucet will furnish clear water during the summer months and milky looking water at certain times in the winter.

By drawing a glass of this milky looking water and watching it for a few moments we will observe that the milkiness gradually disappears, the clearing action beginning at the bottom of the glass and steadily moving upward until all the water has become clear.

When the water pipe through which the water is carried to the faucets passes through a basement where a furnace is in operation, or through a room that is much warmer than the ground where the pipe lies outdoors, the water that is left standing in the pipe indoors

becomes warmed, and in warming it expands. This expansion, added to the normal water pressure in the pipes, is often sufficient to make the presence of the air visible, by the formation of multitudes of tiny air bubbles, when water is drawn from the tap. It is these little bubbles that make the water look milky.

Water in which air bubbles can be seen should always be allowed to stand until all the bubbles have risen to the surface and disappeared before it is used for developing films or plates. If this is not done the air bubbles in the water will make it impossible for the developer to act where they become attached to the emulsion and, by delaying the action of the developer until they disappear, they will cause small disks of lesser

density than their surroundings in the negatives. These disks will make dark spots on the prints.

Should any air bubbles remain on the surface of the emulsion during the entire time of development they would make transparent disks

in the negatives and black spots on the prints.

While all water absorbs air when exposed to the atmosphere, the air in the water will cause no trouble in developing unless it is present in the form of bubbles.



LEVELLING THE CAMERA

THE point of view from which we wish to make the picture is sometimes a place where it is impossible to set up a tripod so it will stand straight.

If a tripod, with a camera on top of it, can be made to stand at all,

the camera can be leveled if the tripod is fitted with a Universal Tripod Head. This tripod head fits all tripods, it can be quickly attached and removed and permits adjusting the camera at any angle desired.



WINTER IN HIGH LATITUDES

Made with No. 3 Folding Pocket Kodak

FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published fifty-three months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed, and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

ADDRESS ALL COMMUNICATIONS

KODAKERY, CANADIAN KODAK Co., LIMITED,
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There is a definite temperature at which any photographic solution does its best work—the formula specifies it—either of the thermometers below offers a dependable means of insuring it.

Eastman Thermometer



Convenient for either tank or tray development although particularly adapted to the former because of its hook top and curved back.

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Thermometer Stirring Rod



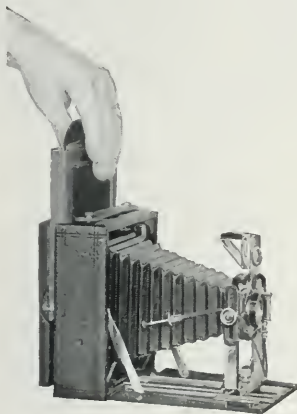
Combines a reliable thermometer with a handy stirring rod. The flat end will be found useful for the crushing of chemicals.

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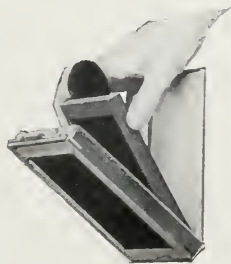
Accurately Focus the Picture in its Full Size Before Making the Exposure.



If direct focusing is not required, the lens is set on the Focusing Scale at the point indicating the estimated distance of the subject.

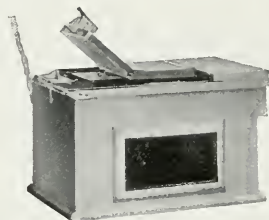
PREMO NUMBER 8

When the character of the subject requires the use of Seed L, Ortho, Non-Halation, or the very fast Graflex Plates, the double Plate Holder replaces the Film Pack Adapter.



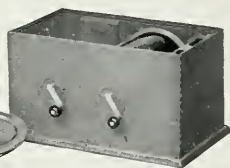
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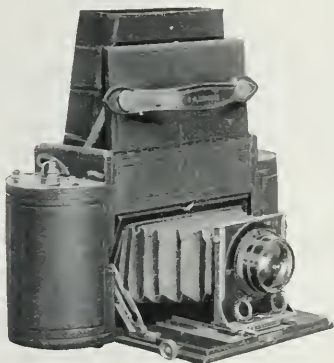
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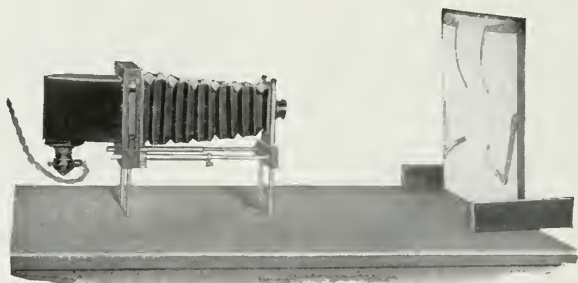
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The Kodak Enlarging Outfit, offering as it does camera, illuminator and easel, in an outfit compact enough to successfully operate in restricted space, furnishes the amateur with all the means for practical enlarging—and the fact that it is called the *Kodak* Enlarging Outfit is proof positive that it is easy to work it successfully.

THE PRICE

Kodak Enlarging Outfit \$18.00

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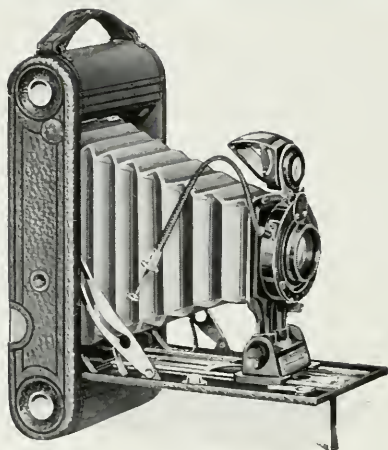
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2c Autographic Kodak Jr.

In consequence of the necessity of trimming, the old square shaped picture is becoming obsolete, in favor of the postcard shape, *which anticipates the trim.*

The 2C Autographic Kodak Jr. preserves the postcard shape, but is slightly smaller— $2\frac{7}{8} \times 4\frac{7}{8}$ " to be exact. The picture fits the view and the camera fits the pocket.

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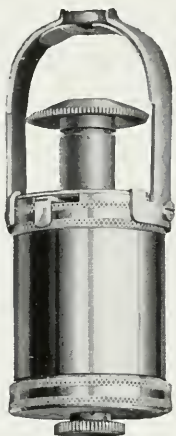
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



APRIL 1918

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.



*You can take the picture
and still be one of the
group with a*

KODAK SELF TIMER

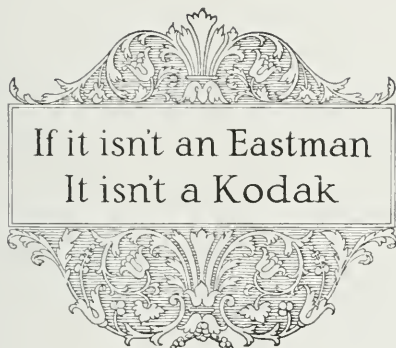
After you have composed the view and focused the Kodak, the action of the Kodak Self Timer allows plenty of time for you to get in the picture. Intervals ranging from approximately one-half second to three minutes (controlled by an adjustable air-lock screw) elapse between the time you set the Self Timer and the time the Self Timer releases the shutter.

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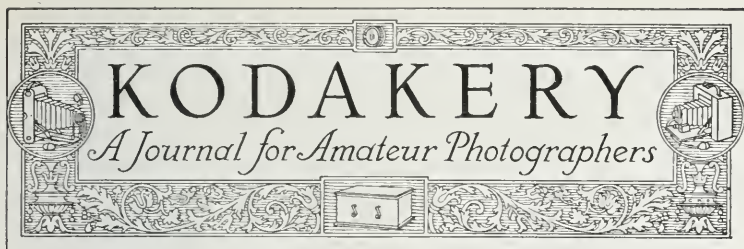
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VOL. V.

APRIL, 1918.

No. 6



NEW ZEALAND SOLDIERS AT MACHINE GUN SCHOOL

THE KALEIDOSCOPE OF WAR

BY ALBERT CRANE WALLACE

Illustrated from Official Photographs from the Western Front.

WE are learning more than tactics about the Great War (though our notion of what tactics really are may be very far astray!) and, as I have already said in the pages of this magazine, a great deal of our clearest notions of things are de-

rived from the reports of the camera.

There would be, for example, no way of describing a "moving up" to a battle front, with all the jumble of its detail, that could possibly convey an impression anywhere near so vivid as that set



GERMAN OBSERVATION BASE USED BY BRITISH ON
CAPTURED GROUND

forth by the camera in its report on page five. From such a picture we get a glimmering of the immensity of detail in the processes of war, detail extending in a thousand directions, and representing the work and anxieties of millions of men. That order should come out of such apparent chaos is one of the wonders of the game.

Some notion of what the washing of an army (of course I am talking about the clothes of an army) may mean is suggested by the picture of a French wash day. Tommy, and Sammy and the *poilu* do a great deal of their own washing, but here is evidence that the plucky and hard working

French women perform a useful part in the mechanics of life back of the lines. (Clothes lines in this case.)

I like this picture of the earnest group of New Zealand men listening to a lecture on the machine gun. The scene is far from being unpleasant. When we pause to think of the circumstances under which these brave chaps may be putting their instruction to the test our feelings may be somewhat different.

How captured utilities other than weapons are put to use by those who captured them is suggested by the appearance of the British observation officer in an armored observation tower



A BATTERY'S TRANSPORT MOVING UP



SIMPLE FUNERAL OF A FALLEN HERO

wrenched from the enemy by the conquest of territory. Here again is a case where description would give but a feeble idea of the object in comparison with the pictorial image.

But more dramatically impressive than any in this group is, I think, that which tells the simple but thrilling story of a soldier burial. However nations may feel about their dead who die on the field of honor, there can be no doubt—and this picture brings the fact strongly before us—that a brave man's comrades have in their hearts a tenderness of sympathy unspoiled by the harsh conditions of war. With so much to tempt men to be selfish it is a wonderful thing that the graves behind the fighting front show so fine a sense of brotherly compassion. In such a scene we find an explanation of that unity of effort and that unity of helpfulness that

hold men together through the little miseries as well as the big ordeals of military struggle.

In the turning kaleidoscope of the mighty struggle we read again and again the story of humanity. Let us hope that humanity may be the better not only for what it endures but for what it sees in the endurance of others. Without such a gain the war would prove a calamity indeed—merely a devastating influence with no mitigation of betterment.

Among the stories of war told after it is over the most impressive, as with those now told, will be the "man to man" stories growing out of the intimate relations, the humors, the sufferings, the tender brotherhood things, often little in themselves but made big by their vital association with the heart interests of plain men held together by danger and courage.



FRENCH GIRLS AND THE SOLDIERS' WASH



THE HOME-COMING—*Made with a Graflex*



THE PRIMITIVE BIPLANE—*Made with a Graflex*

TWO PHASES OF FLIGHT



THE HOUSE BY THE ROADSIDE

*Made with a Graflex, by W. T. Starr; 1-35 sec.; color filter; bright sunshine
DAY TURNED INTO NIGHT*

PICTORIALLY REVERSING DAY AND NIGHT

DAYLIGHT comes directly from the sun, and moonlight is reflected sunlight. By using a very little daylight we can make pictures that will represent night scenes and by using a great deal of moonlight we can make pictures that will resemble day scenes.

Since the exposure that the film in our camera receives depends on the size of the lens stop and the length of time the shutter is open, we can, by giving a short exposure through a small stop, use as little sunlight as is needed for picturing moonlight effects and, by giving a long exposure through a large stop, make use of as much moon-

light as is needed for picturing daylight effects, thus pictorially reversing day and night.

It was in bright sunshine that Mr. Starr photographed "The House By The Roadside," and it was during a moonlight night that Mr. Wilson photographed "The Camp." Mr. Starr's daylight picture unmistakably speaks of night and Mr. Wilson's picture makes us think of daylight.

Pictures that are intended to represent night scenes should contain more dark than light tones. This result can best be obtained by daylight when a color filter is used so that the sky will not



THE CAMP

Made by W. C. Wilson with No. 2C Autographic Kodak on a Moonlight Night in February; exposure 65 min.; stop, f.7-7

NIGHT TURNED INTO DAY

photograph too light, and the exposure must be timed for recording the high lights and halftones only, so the shadows will be rendered very dark. By using a Kodak Color Filter and giving an exposure of $\frac{1}{25}$ of a second through stop 16, or an ordinary snapshot with a fixed focus camera, splendid night effects have been obtained when the sun was shining brightly and there was snow on the ground.

Negatives for night effects should be developed in the tank in the usual way and the pictures should be printed dark enough so that the landscape and the sky will appear darker than for a daylight scene.

When a house is prominent in the field of view the suggestion of night will be heightened if lamplight appears to be shining through some of the windows.

This effect can be produced by placing a bit of opaque, over a part rather than the whole of a window, on the back of the negative with a spotting brush.

All that is necessary for securing daylight effects by moonlight is to place the camera on a tripod, set the shutter for a time exposure and then expose long enough, on a cloudless night when the moon is full or very nearly so. The moon should never be included in the picture because the long exposure needed for securing daylight effects by moonlight (about 500,000 times as long as the same subject would require in sunlight) would make the moon, which is always moving, appear as a line instead of as a disk.

Splendid daylight effects have been obtained by full moonlight, when there was snow on the ground

and the air was clear, with exposures as short as 30 minutes through stop 8 (f.11). The same exposure can be given when the largest stop is used on cameras that have no stop marked 8 or 11.

Some workers who make pictures by moonlight set up the camera and leave it with the shut-

ter open until they find it convenient to go back and get it. Owing to the great latitude of Eastman film good moonlight pictures have been made by this method, under similar conditions, through the same stop, with exposures ranging from 30 minutes to 3 hours.



PRINTS STAINING BETWEEN DEVELOPING AND FIXING

VELUX paper revolutionized the making of photographic prints. With Velox the photographer can accomplish in minutes the work it often took him hours to perform with printing out papers.

The manipulation of Velox is so simple that anyone who will follow the printed instructions that are furnished with the paper can make good prints. A special training is not necessary, but it is necessary to do what the instruction sheet directs, and it is probably because a Velox print can be so quickly printed, developed and placed in the fixing bath, where one can see what the finished picture will look like, that some workers, when impatient to see results, are apt to neglect one of the three things that must be done between the developing and final washing, not only of Velox, but of all kinds of development papers.

It is necessary that all development paper prints should be (1) rinsed in water immediately after they are removed from the de-

veloper and (2) then immediately *completely* immersed, face up, in the fixing bath and (3) kept moving under the surface of the bath during the first few moments they are in the bath.

Unless these three extremely simple yet vitally important things



PATRIOTISM

Made with an O Brownie



COCOANUT PALMS
Made with No. 3-A Folding Kodak



AMONG ALPINE PEAKS

Made with No. 3A Folding Kodak

are done prints may be stained in the process of their making.

The developer is an alkaline solution; the fixing bath for development papers is an acid solution. Since acid neutralizes alkali one of the functions of the acid in the fixing bath is to quickly stop the action of the developer.

The prints must be rinsed in water immediately after they are developed so that development will be checked and most of the developer will be washed from both surfaces of the paper. If this is not done the excess of developer that is on the front and back of the paper will be carried into the fixing bath with the result that the constant addition of alkali that each print carries into the bath will gradually neutralize the acid, and after many unrinsed prints are put in the bath it will be transformed from

an acid to an alkaline solution. An alkaline fixing bath should never be used for fixing development paper prints, because it cannot quickly stop the action of the developer and were a print placed in an alkaline fixing bath it might grow darker during the early stages of fixing.

Unless prints are completely immersed in the fixing bath immediately after they are developed and rinsed those parts of the prints that remain exposed to the air above the surface of the bath will discolor, and unless they are placed face up in the bath, air bells, which cannot be seen when the prints are face down, are apt to remain on the face of the prints, and as the fixing bath cannot act where air bells are present the developer that remains in the emulsion under the air bubbles will stain the print.

Prints must be kept moving under the surface of the fixing bath for a few moments after they are placed in it that the fixing bath may uniformly penetrate the emulsion and stop the action of the developer, some of which is, at this stage of fixing, still present under the surface of the emulsion. If this is not done the developer that is in the emulsion will locally darken or stain the print.

The writer has experimented extensively for many years and has never yet stained a print between its development and its final washing when the three points to which this article directs attention



IN AN ENGLISH VILLAGE
Made with a Vest Pocket Kodak

were observed and the developer and fixing bath recommended by the manufacturer of the paper were used.



NATURAL OUTDOOR BACKGROUNDS

WE often look at prominent objects on the landscape without noticing their surroundings, and while we may actually see the surrounding objects we will not notice them unless we concentrate our attention on them. This probably explains why we sometimes make portraits of people and of animals out of doors without noticing the objects that are behind our subject.

We can see things that we do not notice but the lens on our camera notices everything it sees, with the result that whenever we make a photograph of any object on the landscape our picture shows, not only the object, but some of the ground that lies between the camera and the object and also everything behind the object that the lens sees and makes an image of on the film.

When we are about to photograph anything that we wish to be the chief object of interest in our picture we examine the foreground and, whenever possible, select a position from which an unobstructed view of the subject can be had. While we almost invariably pay attention to the foreground, we sometimes, in the enthusiasm of the moment, forget to examine the background, and when we do overlook the background we may find that our finished picture shows some conspicuous object so placed behind our subject as to detract from the interest of the picture,—as is shown in Fig. 1 of our illustrations.

In this picture the horse and rider are the objects of interest, but the tree in the background, which the photographer may not have noticed, draws our attention

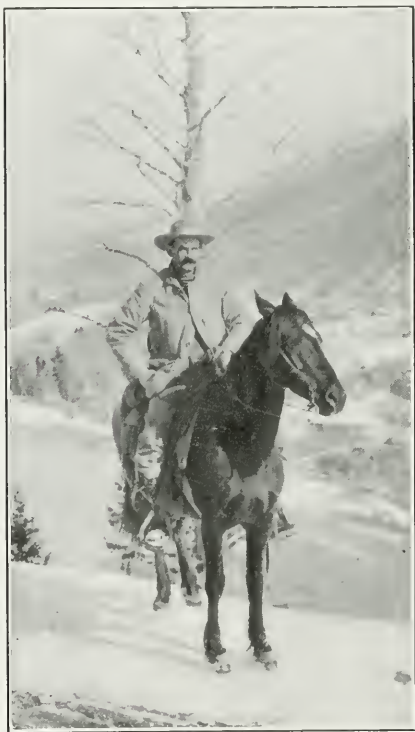


FIG. 1.

away from these objects. This tree detracts from the interest of the picture and we cannot but feel it should not be there.

Such a difficulty can usually be overcome on an open landscape by merely moving the camera or the subject a few feet to the right or left. The result

of doing this is illustrated in Fig. 2.

In outdoor portraiture always avoid selecting a view point which shows the subject directly in line with a tree. A distant landscape makes a pleasing background and when vines or bushes that are ten feet or more from the subject are available, they

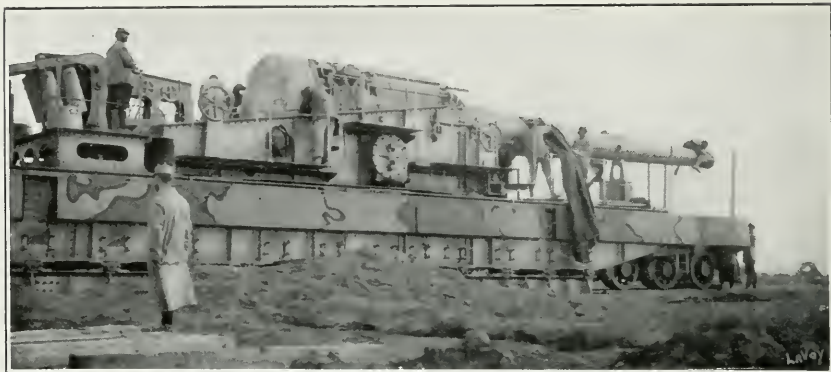


FIG. 2

will answer admirably provided they are in sunlight while the subject is in the shade—not under a tree or the roof of a porch, but in any shaded place where nothing but the open sky is directly overhead.

During the bright hours of the day, say between 9 and 4, $\frac{1}{25}$ of a

second with stop 4 ($f/8$ on anastigmat lenses) will usually amply expose for the portrait and sufficiently over-expose for the foliage background so that the subject will appear in relief against the background. When the background consists of a distant landscape one-half this exposure will be ample.



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MPLEMENTS OF WAR

KODAK STUDIES
AT THE
FRENCH FRONT
BY
MERLE LA VOY





The Full Print, described as a "Scene" with strongly marked opportunities for a "Picture" when needless elements are removed

TRIMMING THE PRINT

BY C. HAZEN TRAYVOR

Third Article.

At the time we make a negative many elements may seem worth while including which afterward may be removed to the advantage of the main point of the picture in which we are interested.

Take the case of the first illustration at the head of this page. The elements here are excellently composed. It would be quite natural to include all of them and as much of them as the negative shows. In fact, to get the spread of the interest it would be difficult not to have had more of area at the top and bottom in the usual shape of film opening.

But there is a good "story" in

this picture—the village group with the horses, and on the road the whirring rival to the horse in precisely the position most effectively to offer a contrast.

How can we best accentuate this story?

The house is a necessary element. The trees are good. All of the features are excellently brought out. But the peak of the house gable just touches the rim of the picture. This is unfortunate composition, for, as the painters say, the peak "sticks." Moreover, the house in its entirety is not essential. Pictorially, the house is not particularly interesting. There is, too,



Print Trimmed on Top and Bottom to emphasize Story of the Horses and their Modern Rival

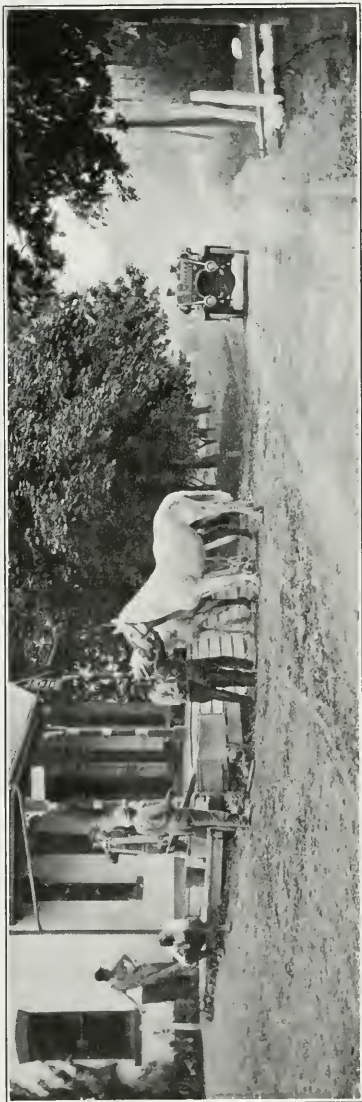
more of the trees than is necessary to the story, and more than is necessary of anything hurts a story, whether it be told in words or in images.

Let us begin by trimming off some of the house, some of the trees and some of the bare, uninteresting road. The second picture surely shows some improvement in the way of concentrating attention on the main points, without in any way impairing or curtailing the features of the original picture.

We may go even further than this by way of striking more strongly the story note. To do this we must take an odd form—the panel, which so often helps the photographer to do things the painter does by deliberate condensation. In the third picture we have all the features of the story lined up in a way to give them the greatest emphasis of which the subject is capable, and without losing a

single one of the features. The character of the house is there. The character and effect of the trees are there, there is plenty of road to help the story and the slight trimming at the left side helps the concentration without bringing any sense of loss.

In our second series of pictures we have a problem of another character. The first picture of the little girl on the porch shows the complete negative image. The surroundings of the little girl are what the painters call “noisy” and do not, as a whole, help to concentrate interest in her. The porch, taken as a porch, has the effect of being cut off before we get an idea of what sort of porch it is. The edge of the house comes down harshly to make a not very favorable junction with the subject's foot. The wasted space behind the chair is emphasized by the cutting off of the subject's outlook on the other side.



Emphasizing to the fullest extent the Picture Story of the Horses and the Auto

It seems to me that with these surroundings so inadequate and so unhelpful it would be better to minimize them and bring forward the story of the little girl to her advantage. The second picture in this series shows the print trimmed at the top and bottom and at the left. It will be seen that by these cuttings we have lost nothing at all of the interest but have made the subject a more important element of the entire image. In the third picture of the series we see the process carried further, saying "window" very briefly, cutting off the distant porch roof and trimming further on the bottom and sides.

In the fourth and last of this series we see that the little girl becomes definitely and strongly the subject of the picture and that although much of the total area of the print has been removed, no element is missing excepting the roof of the porch.

In every case it is for the photographer to decide just how necessary to the main point all the other elements are, remembering that the spectator is not likely to miss what he doesn't see. Often it may seem that parts of the print which might be cut away to the advantage of the "story" or central interest are really interesting in themselves. This may be true, but it is a rule of good art, whether the art be painting, or sculpture, or illustration, or fiction, that things interesting in themselves, but not favorable to



Print from Entire Negative showing elements that do not favor the subject Figure

the central idea should not be included.

You know how you feel when reading a narrative. You do not like to have the author "drag in" matters, however interesting in themselves they may be, that check your special interest in the main theme. You like him to stick to his story. It is the same way with a picture. You expect a painter to stick to his story.

Of course the painter has the advantage that he can put in a great many things in a casual way, or can paint them dimly so that they do not stand out as clearly and emphatically as his main subject.

Under ordinary circumstances the photographer does not have this opportunity. In a large number of cases he must get his emphasis at one point by cutting off at another, particularly when he has not fully considered emphasis at the time he made the negative.

Until he begins to study trimming the photographer seldom realizes the actual advantages of the process. Often mere size in the print seems like boldness of impression. Yet a trimmed print will frequently leave an effect of greater size because it will mean greater boldness in the picture's story.

This is as true of landscapes as of figure studies. And in either case an enlargement from half a



Background partly reduced at Top, Bottom and Left Side



Background much reduced at Top

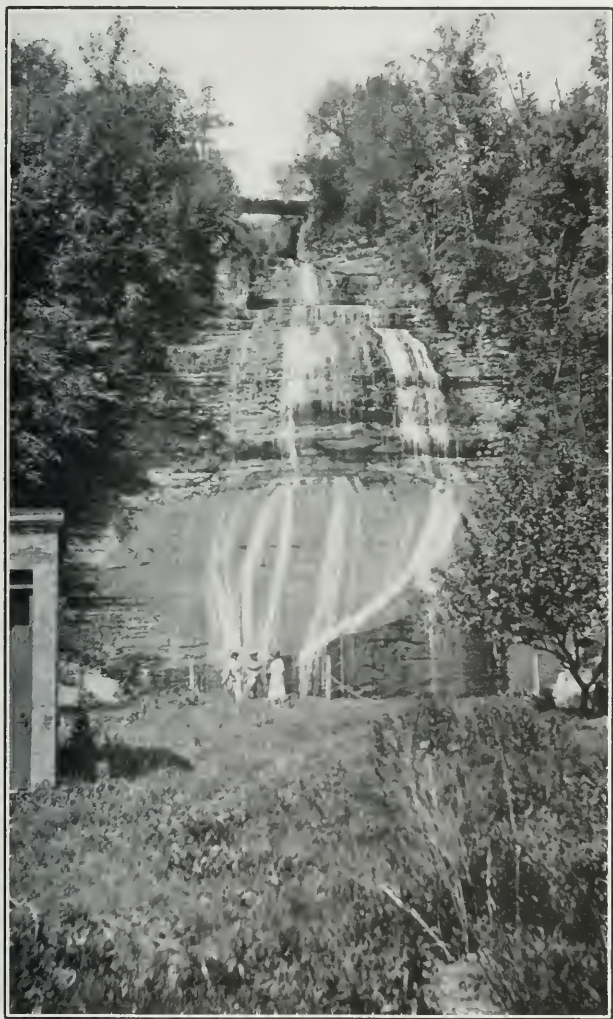
greatly different, we should take advantage of our trimming privilege in adding to the clearness, the forcefulness and the beauty of the story we are seeking to tell—remembering always that these qualities are more important than mere size, just as they are more important in a painting or in a written story. Let us give up the idea of uniformity in the shape of prints—when we are making pictures. If we are showing a collection of scenes uniformity is not a serious detriment. In true pictures—unless they are carefully planned—uniformity should not be expected.

Background Trimmed to Fullest Advantage of the Figure

negative may give a strength of effect far beyond the effect of an entire negative of the same size. The article published in these pages in March on "Pictures Within Pictures" laid stress on the possibilities of finding pictures—sometimes several of them—within one negative.

In these articles I have been seeking especially to bring out the value of a habit by which we do not regard the rim of our negative as the final frame of our pictures. I have urged that we try to do this when we make the negative, but that when we have not done so, or when the frame for any reason should be slightly or





MONTOUR FALLS

Made with No. 3A Folding Kodak, by Geo. G. Smith



TRANQUILITY

Made with No. 3A Folding Kodak

UNIFORMLY PRINTED PRINTS

THOSE of us who made photographs in the days of printing out papers can best appreciate what it means to be able to make as many Velox prints as we wish from the same negative and be sure of having all the prints uniformly printed, so that one cannot be told from another.

With printing out papers it took several minutes in bright sunlight, and sometimes hours when it was cloudy, to print one picture.

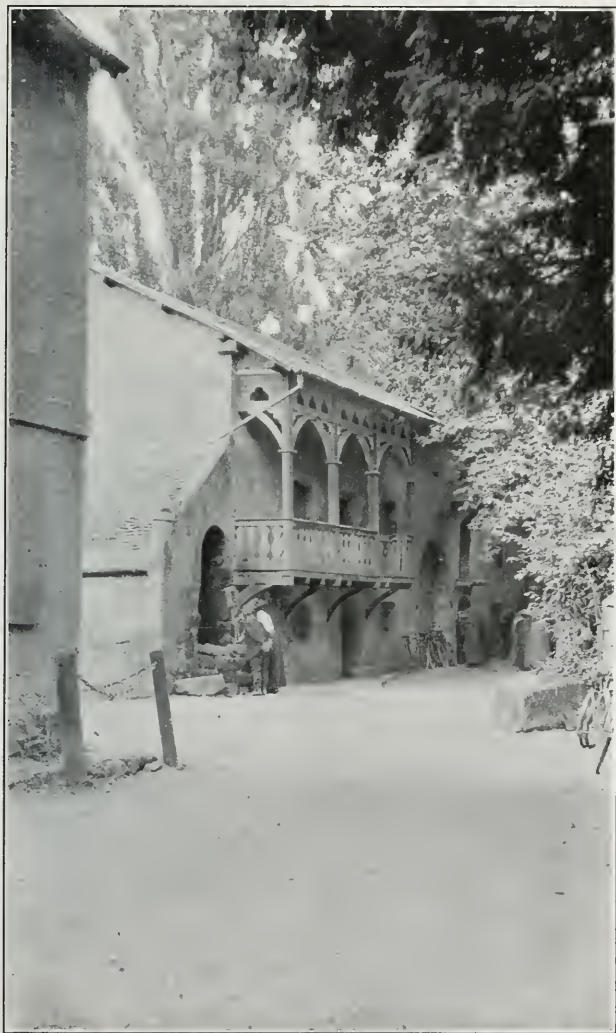
The depth of printing was judged by opening one side of the back of the printing frame and examining the print from time to time. To make a lot of prints from the same negative, that would be exact duplicates of each other was impossible, by this method. Some would be too light and some would be too dark, and only experienced

printers could ever be sure of getting any just right.

The introduction of Velox paper made it possible for any one to make as many prints as desired, by artificial light, from the same negative, with the certainty that each print would be an exact duplicate of the others.

No experience is needed for making uniform Velox prints. All that is necessary is to expose every print to the same light for the same length of time, at the same distance from the light, and to develop every print in the same developer (kept at the same temperature) for the same length of time.

In order to do these things accurately the exposure must be timed with a watch, or with an Eastman Timer which has a single



ON A WARWICK ROAD
Made with No. 3A Folding Kodak

hand on a large dial that records seconds only.

The printing frame must always be placed at the same distance from the light, as the strength of the light is affected by the distance. To insure this the frame should be placed flush against a stop, such as a thin strip of wood, which is fastened at a fixed distance from the printing light.

The temperature of the developer must be tested with a thermometer and kept constant, and the length of time the prints are developed must be accurately timed and not guessed at.

Every one of these things can easily be done by anybody, and when they are done, uniformly printed prints, each of which will be an exact duplicate of the others, will be obtained.



FISHING
TROPHIES

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TO OUR READERS

You read KODAKERY because you are interested in making pictures. We publish KODAKERY because we wish to assist you in making good and then still better pictures.

If you are a beginner in photography KODAKERY will start you right—will tell you how to obtain specific results without experimenting, thus saving you both time and money.

If you are an advanced worker KODAKERY will add to your knowledge of photography, thus assisting you in advancing still farther.

Many months ago we began inviting our readers to submit their photographic problems to us for solution. We requested them to send us negatives and prints for criticism and offered to furnish, by correspondence, information regarding all amateur photographic processes—*these services being rendered free of charge.*

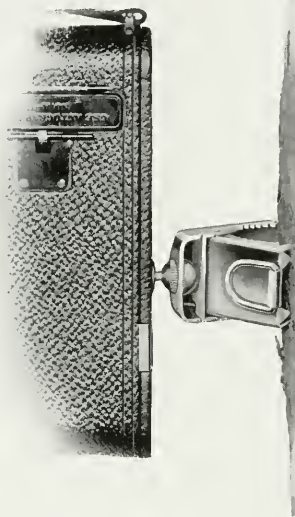
KODAKERY correspondence has steadily grown until it has become an important educational factor. Many of our readers have informed us that our answers to their questions, our criticisms and our suggestions have proven of great help to them.

We have available, and place at your disposal, the knowledge many specialists have acquired from laboratory research. We also are in possession of the knowledge gained by a host of practical workers whose labors have been confined exclusively to photography for many years.

If you wish to profit from this knowledge, correspond with us freely. We will take pleasure in answering your letters.

When sending prints for criticism, be sure also to send the negatives from which the prints were made. We wish to tell you whether the negatives were rightly or wrongly exposed, rightly or wrongly developed, and whether the prints were rightly or wrongly made. Give complete data, when possible, regarding each negative and print. We wish to know the month, the time of day, the condition of light when the exposure was made, the stop and shutter speed used, whether the negative was developed in the tank or in the tray and the kind of developer used. We also wish to know the name and grade of paper on which the print was made. Both negatives and prints will, of course, be promptly returned.

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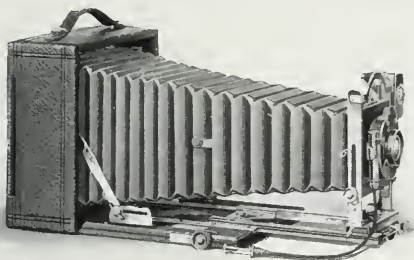
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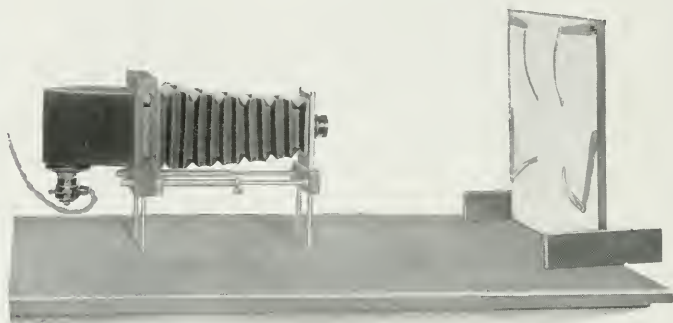
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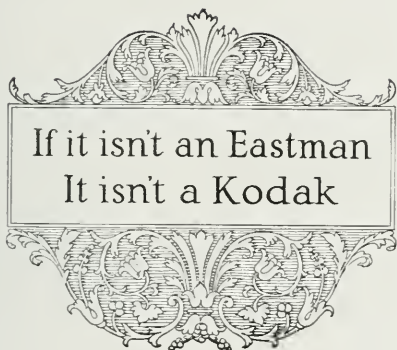
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"AYE, AYE, SIR!"

Enlarged from 1A Kodak Negative, made by C. H. Alvord



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VOL. V.

MAY, 1918.

No. 7



REMOVING WOUNDED ON LIGHT RAILWAY AT THE BATTLE OF THE RIDGES

THE DRAMATIC SIDE

BY ALBERT CRANE WALLACE

With Illustrations from British Official Photographs

IT is impossible not to see the great war again and again as a tremendous drama. In sheer bigness it outranks all the dramas of history. It is so big that we lose sight of the many dramas that go to make it—the little dramas that come closer to the lives of individual men and women than the

vast spectacle of a whole world at war.

Little things—yes, so little that they are not mentioned in despatches, but things that will loom big in the stories individual men will tell. You get glimpses of these little dramas in letters men write from the trenches and back of the



PASSING THROUGH YPRES AT THE BATTLE OF THE RIDGES

trenches and in Kodak stories without words, so many of which you have seen in this magazine.

I like to study these fragmentary pieces of the big drama—the bits that mean so much to some men and for that reason ought to mean so much to us.

Take for example that row of wounded men laid out on the railway cars. A meagre enough incident in the great game, but what a lot it means to those men! The crisis they have known might come has come at last. The wound may be slight, but dramatically this crisis is of tremendous significance. You have felt the same feeling in a small way in seeing a man pulled out of a football game. The hurt man “gets” us.

How a woman's heart responds to such a call is suggested in that other picture of the woman at the stretcher. At first you would

scarcely know her for a woman in that steel helmet and service coat. But she is there—thousands of her—at the Belgian and French fronts, British, Canadian, French, American heroines of whose work we hear only once in a while but who are at their appointed tasks day and night, good weather and bad.

To me there is a dramatic pathos in a batch of prisoners. These men too are out of the game, and all uncertain as to what it may mean to be in that position. It is part of the business of war to fill the minds of fighters with notions of the hazard of being taken prisoner, so that we cannot expect the thoughts of the captured to be very comfortable. At all events they have had their last chance. Sometimes their faces show a realization of this.

The picturesque side of war's drama is shown in the picture •



KING ALBERT OF BELGIUM AT WORK IN HIS HEADQUARTERS
NEAR THE FRONT



AN ENGLISH "ANGEL OF MERCY" HELPING IN CARE OF THE WOUNDED AT THE BELGIAN FRONT



BRINGING IN GERMAN PRISONERS ON THE BRITISH FRONT

revealing the passage through Ypres of troops bound for the fighting front beyond.

On the contrary, nothing could be simpler than the picture of King Albert at his desk. No shell or smoke here—and yet! Could anything be more dramatic than this simple picture of a king, nearly the whole of whose kingdom has been taken from him, whose temples have been shattered, whose beloved villages have been wrecked, whose gardens have been scorched and uprooted, whose whole peaceful, happy country has been personified as one of the great martyrs of all history?

And here sits the king, patiently working, his spirit unbroken, a con-

stant inspiration to every man privileged still to be fighting the invader.

I think I am not straining the meaning of that word drama when I point to the "tank." Can you imagine the awe the enemy felt when they saw it lumbering toward them? Don't you fancy that they thought it was dramatic?—this monster crawling, crawling through barbed wire, over trenches and shell craters, spitting fire, shedding the rain of bullets and shells that sought to check it, clearing a path for brave men and brave horses, willing at last, if need be, to give up its life when its work was done. Aeroplane, submarine and tank—there you have the terrible trinity of inventions that have made the war fantastic and fatal to a degree never known in the world before. And the homeliest of these is the tank, which has something of the fascinating ugliness of a pug dog.

Could anything set a man to musing and philosophizing more readily than a batch of photographs? I think not. Perhaps this is simply because photographs give you the facts without comment, leaving you to dream, to feel, to speak. In their own way they are serving history, and in many ways we do not guess. Not merely history but art will owe much to them. Meanwhile, the human heart owes them a tremendous debt, for they are helping us to see and to understand the human side of machines as well as the human side of men. They are helping to cheer us on the one hand, and on the other to make us feel the need of seeing to it that war does not happen again.



TANK CROSSING A TRENCH ON
ITS WAY INTO ACTION



Subject 3 ft. from lens; pointer set to 8 ft. mark on scale, subject 6 ft. from window, exposure noon, $\frac{1}{2}$ minute at f. 22. 3A Kodak f. 7.7.

PORTRAIT ATTACHMENTS

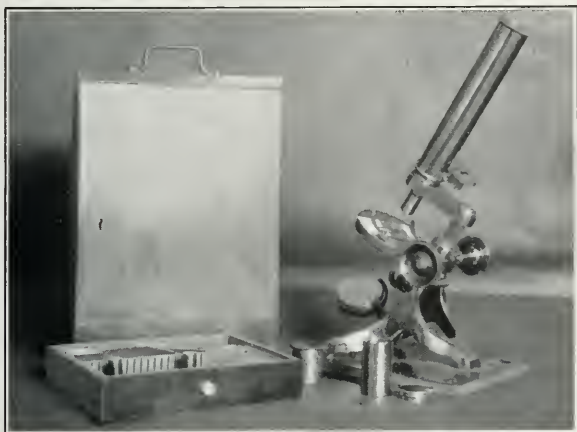
THE term "Portrait Attachment" applied to the small supplementary lenses, which slip on the front of the regular lens of folding instruments, or go into the aperture in the front board of box cameras, is somewhat misleading; many may be under the impression that their field of usefulness is limited solely to portrait work. This is anything but the case as there are a hundred and one things which can be recorded with the aid of the Portrait Attachment, such as flowers, dainty china, cut glass and even paintings and other pictures.

Successful pictures of this type are easy to make if a few simple

rules are followed, but it is of primary importance that the scale of the camera be set to the proper point to correspond with the distance of the object from the lens when the portrait attachment is in place, or we shall not obtain sharp pictures.

By examining the focusing scale of a Folding Kodak, it will be seen that the separation of the marks indicating the different distances for which the scale is graduated, becomes much greater as we approach the front portion; in other words, as we focus on objects closer and closer to the camera, the lens must be moved more and more.

The 20-ft. and 10-ft. marks on



Subject 3 ft. from lens; pointer set to 8 ft. mark on scale; subject 5 ft. from window, exposure, 11 a.m. March, bright day, $\frac{1}{2}$ minute at f. 22. 3A Kodak f. 7.7.



Subject (oil painting) 2 ft. 8 ins. from lens; pointer set to 6 ft. mark on scale; subject 5 ft. from window, exposure, 11.30 a.m. March, bright day, 1 minute at f. 22. 3A Kodak f. 7.7.

the focusing scale are twice as far apart as the 30-ft. and 20-ft. marks showing that greater accuracy is necessary when working at close quarters, in estimating the distance from lens to subject than is the case when photographing objects which are at a considerable distance from the camera.

Our illustrations indicate the possibilities of the Portrait Attachment while the data given in each case may prove helpful. These pictures were made by placing the camera near a window, but slightly to one side, the objects being arranged diagonally from the window. If we placed the objects straight back from the window and the camera immediately in front, all suggestion of light and shade would be lost.

Many comparatively small ob-

jects will be better rendered if some form of background is used, otherwise bright or polished objects, within the field of the lens, may reflect light toward the camera and give rise to unsightly patches of white in the background on the final print.

Such a background can easily be contrived from a large sheet of cardboard, which may be light or dark according to the general tone we wish our background to have to harmonize with the subject. It should be placed a little distance back, otherwise sharply outlined shadows of the objects in front of it may show and produce an unpleasant effect.



WITH ROD AND CREEL IN B.C.

Made with a 3A Kodak

INDOOR PORTRAITS BY FLASHLIGHT

BY LATIMER J. WILSON

Illustrated by the Author

To be sure of obtaining good indoor portraits by the daylight that comes through windows we must be able to control the light so it will reach the subject at the right angle. This cannot always be done in small rooms or beside windows that do not receive the direct light from the sky.

With flashlight, however, we can control the light and make it reach the subject from any direction and at any angle we desire. The most pleasing portraits are usually obtained when the center of the source of light is far enough above the subject so that the light will reach the face at an angle of about 45 degrees.

The first requisite in portraiture should be a pleasing likeness. The staring eyes sometimes seen in flashlight portraits are not pleasing. They merely tell all observers that the photographer made the picture in the wrong instead of in the right way.

Staring eyes showing enlarged pupils are the result of making a flashlight portrait in a room that is too dark, and staring eyes which show the eyelids far apart are the result of the subject forcibly holding the eyelids open in hopes of avoiding winking or closing the eyes during the period of exposure.

Staring eyes can be avoided in flashlight portraiture by making the flashlight in a room that is well lighted by two or three electric light bulbs, or by gas jets or kero-

sene lamps. These lights should be left turned on while the flash is being made. If the shutter is not opened until immediately before the flash is ignited and then closed immediately after, these lights will have no perceptible effect on the film, provided the camera is so placed that they do not shine in the lens.

Unless the subject shows an inclination to forcibly hold the eyes open it will be unnecessary to mention that no thought should be given to the eyes.

What is wanted is a natural expression and this is best obtained when the existence of the eyes is forgotten. Perhaps the easiest way of insuring a natural expression, and incidentally giving the picture a story-telling quality that will add to its value, is to have the subject apparently engaged in doing something which will hold the attention of the eyes, such as reading, writing, knitting or playing the piano.

The light from a flashlight emanates from a small area, in consequence of which it casts strong shadows. These shadows may or may not be pleasing. The illustrations on pages 12 and 13, which were made with a 3A Kodak, using stop *f*.8, by the light of one No. 1 Eastman Flashsheet, show how the presence and absence of the shadow of the subject affect the pictorial quality of the picture.

By referring to the diagram on page 12 we will see that the shadow



FIG. 1
AND
DIAGRAM
SHOWING
HOW IT WAS
MADE

●
*Subject 2 feet
from Wall
Subject 9 feet
from Flashlight
Flashlight
about 5 feet
above Floor*

on the wall in Fig. 1 was caused by placing the subject only two feet from the wall and the flashsheet only five feet—just a trifle higher than the lady's head—above the floor.

The diagram on page 13 tells us that the absence of the shadow in Fig. 2 is the result of having placed the subject four feet from the wall and the flashsheet seven feet above the floor—considerably higher than the lady's head.

Both flashlights cast a shadow; the first cast it on the wall where it is visible in the picture and the second cast it on the floor and on the lower part of the wall where it cannot be seen in the picture.

In flashlight portraiture it is

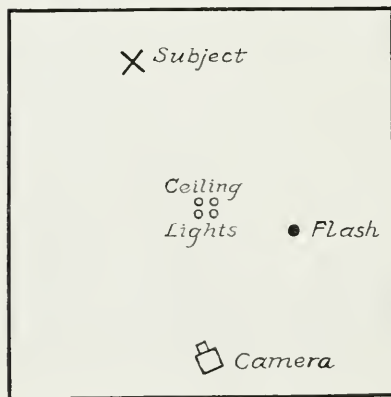


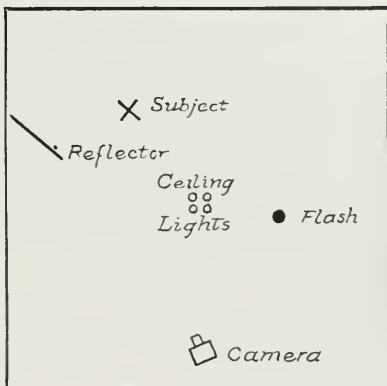
FIG. 2
AND
DIAGRAM
SHOWING
HOW IT WAS
MADE

●
*Subject 4 feet
from Wall
Subject 4 feet
from Reflector
and 7 feet from
Flashlight
The Flashlight
about 7 feet above
Floor*

usually advisable to use a white curtain or a white sheet for reflecting the light to that side of the subject that does not receive the direct light from the flash.

In Fig. 1 white curtains on a window near the subject, but not shown in the picture, served as a reflector. In Fig. 2 the reflector consisted of a white sheet, which was placed in the position shown in the diagram.

Flashlight not only enables us to make portraits in practically any room but it enables us to do what cannot be done with daylight—to photograph our subjects in any part of any room, and the most suitable setting for an indoor portrait is often in a part of a room that is far from a window.





PEAK AND PLAIN
Made with No. 3A Folding Kodak

THE EXPOSURE QUESTION

IN this day of fast film, fast plates, fast shutters and fast lenses, the tendency is always to speed and more speed and the accomplishments in this direction are gratifying alike to both operators and manufacturers. When, however, we are dealing with normal subjects devoid of excessive movement, the golden rule of "Exposing for the shadows and letting the high lights take care of themselves" should be adhered to wherever it is possible to do so.

The latitude of a modern film or plate on the side of under-exposure is very small indeed compared with its ability to support over-exposure. Consequently when there is any doubt on the question of what exposure to give, it is better to err on the right side and give too much rather than too little. By doing so, those heavy

uninteresting masses of shadow with entire absence of detail will be avoided to the considerable betterment of the final print.

The result of giving an exposure of say three times what would have sufficed to obtain a perfectly good negative, would be a somewhat heavier negative lacking in strong contrast but having a full scale of gradation from high light to shadow. The lack of contrast can be easily corrected by using Regular instead of Special Velox when printing; the print will then compare quite favorably with others where the exposures were shorter.

No amount, however, of careful treatment during printing will compensate for under-exposure—detail cannot be brought out in the shadows, which was never there.



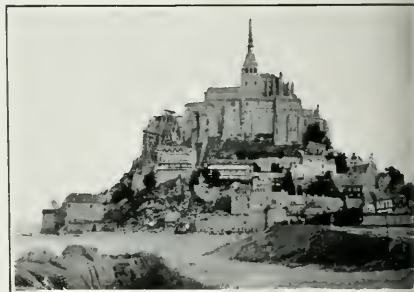
PLAYTIME
Made with a Folding Kodak

BITS OF UNS

SOME KODAK AND BROWNIE SOUVENIRS



The Leaning Tower of Pisa



Mont St. Michel



St. Ives Fishermen

DOILED EUROPE



The Summit of Monte Rosa



Hampton Court, London



Piazza del Popolo, Rome

GETTING THE MOST OUT OF THE NEGATIVE

IN order to get the most out of a negative we must make the print on the grade of paper that will most nearly record all the tones that the negative contains.

In most of the negatives we make there are three principal tones which are broadly classified as highlights, halftones and shadows. The highlights are the dark parts of a negative and the light parts of a print, the shadows are the light parts of a negative and the dark parts of a print, and the halftones are those tones that are intermediate between the highlights and shadows.

Included in each of these three principal tones are several minor tones which are represented by fine gradations of light and shade, and since these minor tones furnish much of the detail we must, if we wish to get the most out of a negative, record as many as possible of these minor tones in our print.

Two things are necessary for doing this—the use of the right grade of paper and printing for the right length of time.

In the majority of cases we can get the most out of a landscape negative by printing for the halftones, and when we do print so as to get the utmost halftone detail the right length of time to print will be the length of time it takes to properly record this detail, then after we have correctly printed the halftones we can tell whether we have used the right grade of paper. If we have lost much shadow or highlight detail, so that the print is too contrasty, we should use a softer grade of paper, and if we

have lost no detail but the print looks weak and flat we should use a more contrasty grade of paper.

In our illustrations the building and the tree that is nearest to it are the chief objects of interest. Since they furnish the motive for the picture it is necessary that they should be correctly rendered. But the mountain in the background furnishes the setting for the scene, and this fact makes it as necessary to correctly render the background as the foreground objects.

Fig. 1 is a reproduction from a print made on a contrasty grade of paper. It records the foreground objects but the background is scarcely visible. In the negative it is the background that contains the minor halftones and it is for these tones we should print.

Fig. 2 shows the result of printing for these minor tones on the same grade of paper that was used for printing Fig. 1. We have recorded these tones in Fig. 2 but have lost too much detail in the principal object of interest in the picture, and it is this loss of detail that tells us the grade of paper used was too contrasty for the negative.

By using a softer grade of paper we obtain the result shown in Fig. 3, where all the tones are correctly rendered. And we have, in Fig. 3, gotten the most out of the negative because the picture records practically all that the negative contains.

We must ever bear in mind that no one grade of paper is suitable for all kinds of negatives, and that in landscape work, where we have no control over the light, it is



FIG. 1—*Showing Detail in Foreground, Background Scarcely Visible*



FIG. 2—Printing (with same grade of paper used in Fig. 1) to Get Background, thus losing Detail in Foreground



FIG. 3—Made with Softer Grade of Paper to obtain both Background and Foreground Detail

impossible always to make negatives that will be best suited for any one grade of paper. Even when the exposure and development of the negative were correct the presence or absence of sunshine and the nature of the subject will affect the contrast of the finished negative. A distant landscape, whether viewed under brilliant sunshine or a gray sky, shows less contrast than a nearby landscape that has a dark colored object in the foreground,

and since it is the contrast between the tones that separates one tone from another in our pictures we must, in order to get the most out of our negative, use the grade of paper that most faithfully records this separation of the tones. It is for this reason that Special Velox should be used for contrasty negatives, Regular Velox for negatives of medium contrast and Contrast Velox for negatives that have very little contrast.



A COMPLETE ENLARGING OUTFIT

THROUGH a magnifying glass we can plainly see objects that are invisible to our unaided eyes. This is, of course, due to the fact that the magnifying glass enlarges the images of the objects.

In a good enlargement from a negative that contains plenty of detail we can usually see more detail than we can see in a print that was made by contact with the negative in a printing frame. This detail adds so much to the picture that the enlargement tells the picture story more fully than does the contact print.

The light used for making enlargements is either daylight or electric light.

In order to use daylight, with any equipment that will permit us to make enlargements of different sizes, a special apparatus must be constructed and fitted to the open window of a room that can be made totally dark in the daytime. The chief drawbacks to daylight enlarging are that a suitable room

is not available in all homes and that the brightness of daylight fluctuates so greatly that the exposure needed for making enlargements of the same size from the same negative changes from hour to hour and day to day.

In enlarging by electric light with the Kodak Enlarging Outfit these drawbacks do not exist. This outfit includes camera, lens, lamphouse and easel. No special equipment of any kind is needed. It can be used on an ordinary table in any room that is lighted with electricity and, as the brightness of an incandescent electric lamp is comparatively constant, the exposure required for making enlargements of the same size, from the same negative, is practically the same at all times. It is understood, of course, that the exposure for different sizes of enlargements from the same negative will vary according to the size.

From what we have stated it will be seen that the Kodak



SHOOTING AN OIL WELL

Made with No. 3-A Folding Kodak, by Lawrence Hack

Enlarging Outfit has substituted certainty for guesswork. It has made enlarging as simple and as dependable as contact printing. It will make enlargements of practically any size, from either film or glass negatives that are not larger than 4 x 6 and it allows us to do easily what we can only with difficulty accomplish in contact printing, that is, to locally control the printing and thus increase or de-

crease the contrast between *some* of the tones of the picture on whatever grade of paper is used. The increase or decrease of contrast between *all* the tones is accomplished in enlarging the same way it is in contact printing—by the use of different grades of paper.

Next month we will explain and illustrate how to locally control the printing of enlargements.



A BRITTANY NET MENDER AT WORK

Made with No. 3A Folding Kodak



OBSERVATION POST IN A RUINED FRENCH CHATEAU

Copyright Photograph made by Merle La'oy

WHEN YOU'RE IN A HURRY

SHOULD a print be wanted quickly after the film has been exposed in the camera it can be made immediately after the negative has been developed and the yellowish color of the emulsion has been removed by the fixing bath.

At this state of the fixing process the negative may be taken out of the fixing bath, rinsed in water and placed between clean blotters that are free from lint, so the water that is on both its surfaces will be absorbed. The print can then be made in the usual way, provided a sheet of Transparent Kodaloid is placed between the negative and the printing paper so that the paper cannot come in contact with the negative.

This Kodaloid is practically waterproof and is so thin that it will have no appreciable effect on the sharpness of the picture.

After the print has been made the negative should be returned to the fixing bath and left there for 15 or 20 minutes and then thoroughly washed and dried.

The reason why the negative must be placed in the fixing bath the second time is because it was removed from the bath as soon as it was cleared of the yellowish color and no negative is thoroughly fixed as soon as it becomes clear.

There are two stages in the fixing process. In the first stage the undeveloped silver bromide is removed. This makes the negative clear, but during this stage an invisible salt is formed which water cannot remove. Though this salt is insoluble in water it is soluble in hypo and it is during the second stage of fixing that the hypo removes this salt from the film. Negatives should always be left in the fixing bath for twice the length of time it takes to clear them, for unless the invisible salt is removed it will, in time, ruin the negatives. After a negative has been thoroughly fixed the chemicals remaining in the film can be removed by thorough washing.

The making of prints from wet negatives is recommended only in cases of emergency. Should it be necessary to make several prints from a wet negative the negative must be watched and should its edges begin to dry before all the prints are made it should be immediately immersed in water and left there for about 15 minutes after which the water may again be blotted from its surfaces and the printing resumed.

The Kodaloid can be used repeatedly if it is washed and then wiped dry with a clean soft cloth after the prints have been made.



CHANGE OF ADDRESS

SHOULD you change your address be sure to notify us at once, giving both your

old and new addresses, and also *the date when your subscription expires.*

TO OUR READERS

You read KODAKERY because you are interested in making pictures. We publish KODAKERY because we wish to assist you in making good and then still better pictures.

If you are a beginner in photography KODAKERY will start you right—will tell you how to obtain specific results without experimenting, thus saving you both time and money.

If you are an advanced worker KODAKERY will add to your knowledge of photography, thus assisting you in advancing still farther.

Many months ago we began inviting our readers to submit their photographic problems to us for solution. We requested them to send us negatives and prints for criticism and offered to furnish, by correspondence, information regarding all amateur photographic processes—*these services being rendered free of charge.*

KODAKERY correspondence has steadily grown until it has become an important educational factor. Many of our readers have informed us that our answers to their questions, our criticisms and our suggestions have proven of great help to them.

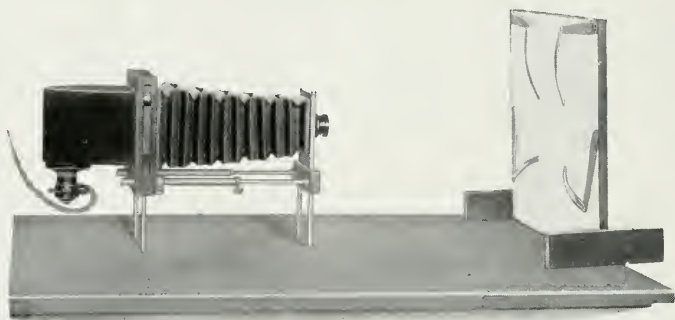
We have available, and place at your disposal, the knowledge many specialists have acquired from laboratory research. We also are in possession of the knowledge gained by a host of practical workers whose labors have been confined exclusively to photography for many years.

If you wish to profit from this knowledge, correspond with us freely. We will take pleasure in answering your letters.

When sending prints for criticism, be sure also to send the negatives from which the prints were made. We wish to tell you whether the negatives were rightly or wrongly exposed, rightly or wrongly developed, and whether the prints were rightly or wrongly made. Give complete data, when possible, regarding each negative and print. We wish to know the month, the time of day, the condition of light when the exposure was made, the stop and shutter speed used, whether the negative was developed in the tank or in the tray and the kind of developer used. We also wish to know the name and grade of paper on which the print was made. Both negatives and prints will, of course, be promptly returned.

ADDRESS ALL COMMUNICATIONS,

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TORONTO, CANADA.



It is easy to enlarge your own with the

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Enlargements up to the size of the easel, 14 x 17 inches, may be made from any negative sized 4 x 6 inches or smaller—and the outfit is compact enough to operate successfully on table or shelf.

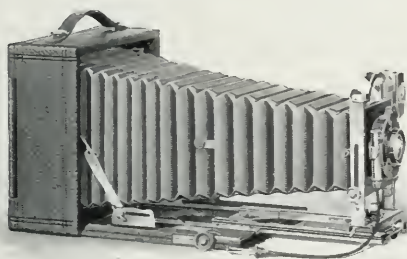
THE PRICE.

Kodak Enlarging Outfit, supplied complete with lens and diaphragm, largest opening U.S. 4, but not including the 60 Watt Mazda lamp for use in the illuminator, - - \$18.00

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Premo No. 9

The long bellows draw permits the close approach required in copying, and accommodates, as well, a long focus lens, that will render true perspective.

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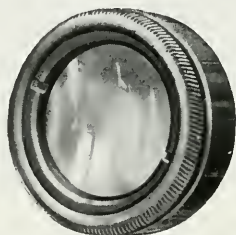
The Ground Glass Screen, and the Rack and Pinion, provide for accurate composition and focus.

The Premo No. 9 is made in three sizes— 4×5 , $3\frac{1}{4} \times 5\frac{1}{2}$, and 5×7 , and Film or Plates may be used with equal facility.

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TORONTO, CANADA

The Kodak



Portrait Attachment

slips on over the regular lens equipment and enables you to bring your Kodak within arm's length of the subject to be photographed. The result is a large image direct.

The name indicates that it is of particular value in making impromptu portraits.

Price, fifty cents.

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GRAFLEX

The Camera of Precision



The Composition and Focus are both under control up to the instant the shutter is released, and are shown in the full picture size, right side up.



Exposures suitable to an almost unlimited variety of subjects may be chosen from the twenty-four automatic speeds, ranging from $\frac{1}{10}$ to $\frac{1}{1000}$ second, available with the Graflex Focal Plane Shutter.

*Ask for the 64-page Graflex Catalogue,
free at your dealer's or by mail.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

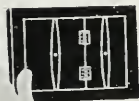


This picture, made with a Kodak, Eastman Flash Sheet and Kodak Flash Sheet Holder, is an indication of what any amateur can accomplish with similar equipment.

Eastman Flash Sheets burn without excessive glare, and the Kodak Flash Sheet Holder makes their use simplicity itself.

The price of the Kodak Flash Sheet Holder is \$1.00.

CANADIAN KODAK CO., LIMITED
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Prints by Gaslight

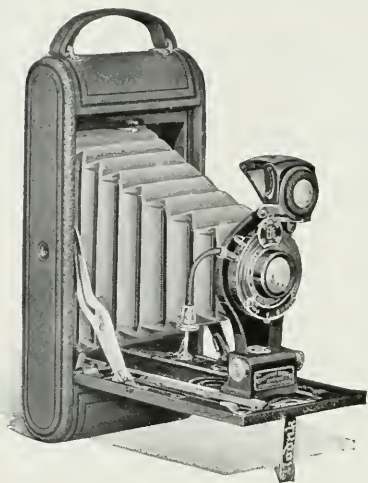
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get on

VELOX

is the best print you *can* get.

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Pictures $2\frac{1}{2} \times 4\frac{1}{4}$

No. 1A Autographic Kodak

Exceedingly compact, precise in its action and simple to load.

Autographic of course—you can write the date and data on the film at the time.

PRICE.

1A Autographic Kodak with Rapid Rectilinear Lens and Kodak	
Ball Bearing Shutter - - - - -	\$18.50
Do., with Kodak Anastigmat Lens <i>f</i> 7.7. - - - - -	24.50

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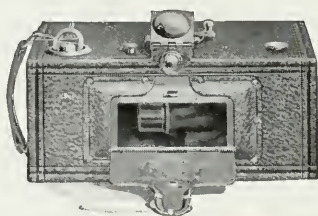
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



JUNE 1918

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.



The Panoram Kodak

Distinctively different pictures—long and narrow—that include the whole view whether it be an out-door group or a spring landscape, are easy work for the Panoram Kodak and pleasure complete for you.

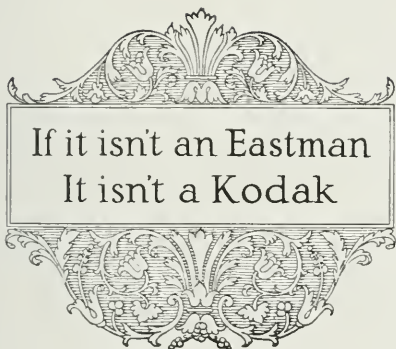
There are two Panoram Kodaks, the No. 1 and No. 4. Each is of the same careful construction, with covering of genuine leather and nickeled fittings. The No. 1, however, makes a picture $2\frac{1}{4} \times 7$ inches, and its lens swings through a scope of 112 degrees; the No. 4 makes a picture $3\frac{1}{2} \times 12$ inches and swings through a scope of 142 degrees.

THE PRICE.

No. 1 Panoram Kodak,	-	-	-	-	-	-	\$13.50
No. 2 Panoram Kodak,	-	-	-	-	-	-	22.50

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

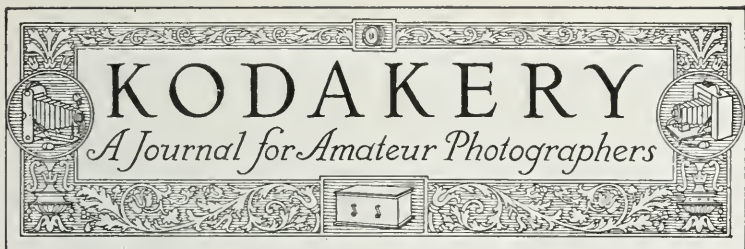
At your dealer's.



If it isn't an Eastman
It isn't a Kodak



THE LANE IN SPRING
Made with No. 3A Folding Kodak

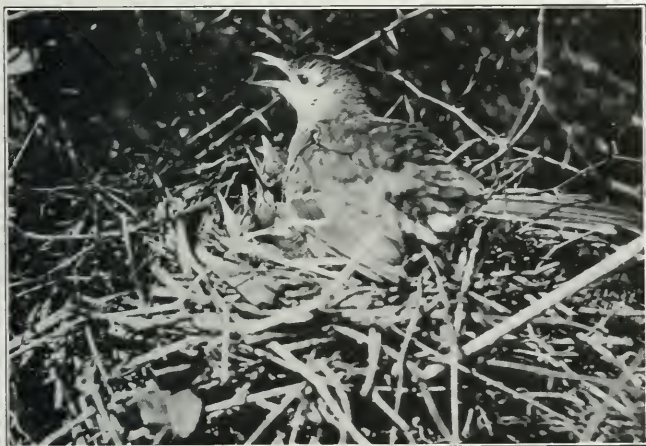


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VOL. V

JUNE, 1918

No. 8



THE BROWN THRASHER AND HER YOUNG

KODAKING WILD BIRDS

BY HOWARD TAYLOR MIDDLETON

Illustrated with Premo Pictures made by the Author

MANY photographers seem to hold the mistaken idea that successful bird photography can only be achieved with an elaborate equipment, and my friends have been agreeably surprised when I have proved to

their complete satisfaction that this is not so.

The birds that frequent the orchards and gardens surrounding country houses may be photographed with any hand camera, the only accessories needed being a



BLACK CROWNED NIGHT HERON

spool of thread, a tripod (when the nest is not too high from the ground) and an adjustable pole topped with an Eastman Universal Clamp for attaching camera when the bird's home is in a lofty nook.

For this pole I use two hard pine sticks 1" x 1½" x 6', with holes bored every four inches and bolts run through, to which thumb-screw nuts are attached to hold the sticks rigidly together. In



BLUE WINGED TEAL (FEMALE)

setting up this equipment in the field I drive my first stick, which is pointed on the end, into the ground, then clamp the second stick in place at the correct height, attach camera, make thread fast to

shutter lever and go into ambush, carrying thread with me. When the mother bird, who at first has been badly frightened by the queer looking black box, decides that it is harmless and returns, I



MOTHER CHIPPING SPARROW FEEDING HER BABIES
ON A FRIENDLY HAND

pull the thread gently and the picture is mine.

If the nest is too high for the photographer to focus his camera after it is in place from the top of a box or stepladder, a limb must take the place of the pole, and then he is forced to resort to climbing. Sometimes a tree or branch near the nest may be utilized as a resting place for the camera. In that event the thread is dropped to the ground and pulled at the proper time, as described above.

For the beginner I would suggest any of the following birds, as during the nesting season they are exceedingly tame; chipping sparrow, robin, brown thrasher and wood thrush. I have worked within three feet of the nests of these birds with the greatest ease, the old birds paying me practically no attention. In one case, when

I was photographing a chipping sparrow family, I had the young birds perched upon the palm of my hand when the mother settled upon my finger tip and fed them there, apparently as unconcerned as though nothing unusual was transpiring in birdland.

My experience with the wood thrush has been that instead of the mother bird flying away from the photographer, she is much more apt to fly at him. The love for her children entirely overcomes her fear of man, and she is ready and willing to fight him in their defence. This also applies to the brown thrasher.

In cases where the bird is afraid of the camera and refuses to return, even after a great expenditure of time and patience on the part of the photographer, a small black box may be placed in front

of the nest for a day or so until the bird becomes accustomed to it. Then, if he will substitute the camera for the box, success will crown his efforts.

There are some birds, such as the herons and wild ducks, which are not to be snapped by the set camera method, but must be stalked, as game is stalked when hunting with a gun. There was a black crowned night heron nesting in a tall pine near my home last summer, and I was eager to get a picture of her. One day I saw her fishing in the creek and decided to "still hunt" her. Secreting myself in the reeds I crawled up on her, a few inches at a time, until I arrived within easy camera range, then, rising very cautiously, I snapped her before she could take wing. I did this with a Preino long

focus camera fitted with a rapid rectilinear lens, with a maximum shutter speed of $\frac{1}{100}$ second, and I felt all the more proud of my achievement when I realized that I had taken an unusual wild life photograph with an ordinary hand camera.

Regarding the speed and stop to use for bird pictures, I always use the largest stop and the fastest shutter speed that the light conditions permit.



A slight re-adjustment of our position when making an exposure will often make or mar the result from a pictorial standpoint, giving a pleasing or unpleasing arrangement within the picture space



WOOD THRUSH FEEDING HER YOUNG

KODAK PARK A TRAINING CAMP

Reproduced from American Kodakery

KODAK PARK is in the war. From reveille to taps, it is alive with lads in khaki. With its barracks and mess hall and instruction quarters, it has taken on the aspect of an army cantonment.

Nor are these play soldiers that are quartered there. They are the boys who soon will be "over there" doing their part, often within range of the big German guns, that the fight may be kept over there, not finished over here.

But it is not how to advance in open order, how to bomb a boche dug-out or parry a bayonet thrust that they will be taught in their training. They are learning how to develop the negatives brought back to them by the scouts of the air; negatives that tell where the howitzers are concealed, where the lines are weak and where they are strong, by what routes supplies are brought up, what movements of troops are being made—will tell to General Pershing the thousand and one things that he wants to know and that Hindenburg doesn't want him to know.

We think of aeroplanes as bomb droppers, as brilliant air duellists rat-tat-ting each other with Lewis guns; but the big part of the work is bringing back pictures of the enemy terrain, pictures on which the immediate activities of the army are based. Aeroplanes fight duels in the air, of course, fight them every day, and it is these brilliant exhibitions of daring that find space in the news columns—but, as a rule, their fighting is to

protect their own photographers or to "down" an enemy plane that is likewise on a photographic scouting expedition.

Before the successful advance at Vimy Ridge, hundreds of aerial photographs showed the exact location of the enemy guns and strongholds, showed them so accurately that they were demolished in the hurricane of big gun fire before the eager infantrymen dashed across No-Man's Land to victory.

Our own vast aeroplane fleet, now in the making, is likewise to provide the scouts for the army, and cameras will be their eyes. Photography, therefore, looms big in the war program. Men must not only be taught how to fight, but men must be taught how to fly, how to photograph and how to develop and to print. From four to five thousand men are needed, and at once, to do the photographic work back of the lines, to translate, for the commanding officers, the photographic message that the scouts bring back from the skies.

And these men are to be trained in photography at Kodak Park.

It was a great satisfaction to us that at this critical time we could offer our government the facilities of our great plant for the training of these men, and, for what is equally important, the manufacture of the special apparatus and materials that are so urgently needed. We had not only the largest and most complete photographic manufacturing plant in the world, but we also had a co-ordination of resources that enabled



THE SENTRY

Made with a Vest Pocket Kodak

us to devise cameras for special needs, to equip them with special lenses of our own calculation, ground by our own workmen, and to produce the sensitive materials best suited to the peculiar requirements of war photography. Here was an organization with its marvelously equipped Research Laboratory and a great force of engineering, scientific and inventive specialists, all working to broaden and better photography. Apparently it was following what was strictly one of the pursuits of peace—but war came and it was ready.

The photographic activities of the army are all under the Signal Corps, and it was, therefore, to that division that we specifically

offered our services for the training of men as well as for the designing and making of whatever might be required to perfect its photographic equipment:

"To provide school accommodations and instructors for training men for the photographic work of the Aviation Section in Rochester, with experts to take charge of the work so far as their services were required and to select and recommend some of our younger specialists for service with the Aviation Section here and abroad.

"To construct and submit experimental cameras and submit blue prints of same so that tenders for their construction could be obtained from other firms as well as our own.

"To send emulsion experts to aviation fields to experiment on different types of sensitive material, and to advise which we found best suited to aviation photography.

"To design a photographic motor truck for field work and submit detail drawings for a photographic field laboratory.

"To make tenders for all special apparatus and materials required by the Section, based strictly on their cost to us, plus ten per cent. to cover contingencies, it not being our intention to make any profit whatever out of these materials."

That our offer to place everything that we have and everything that we are, in the service for the winning of the war was evidently appreciated at headquarters—an appreciation that makes us all the more anxious to do well our part—is evidenced by the following communications from Major General Squier, Colonel Engel and Lieutenant Colonel Horner:

"EASTMAN KODAK Co.,

"Rochester, N. Y.

"The beginning of the new year brings with it a thorough realization of responsibility which rests upon every one connected with the carrying out of the aircraft programme. We appreciate what you are doing to co-operate in this work. We know you realize that it is with only the most intense effort that the task can be successfully accomplished. The country looks to you for great achievements during the coming year.

"SQUIER,

"Major General Chief Signal Officer."

The following is an excerpt from a letter from Colonel Engel, dated January 16, 1918:

"This is by far the best offer that the undersigned has ever seen to help us in getting our units trained and equipped. I have just left the office of General Squier, and he is certainly delighted with everything."

Lieutenant Colonel L. S. Horner wrote us along these same lines on February 6, 1918:

"The management of the Equipment Division of the Signal Corps is more than satisfied with the broad-gauged American way which you and your Company have offered to assist us and are assisting us."

But to get back to Kodak Park: The necessity was for providing, at the earliest possible date, four or five thousand skilled photographers to do the ground work connected with aerial photography. The Signal Corps has the men, and as we have the facilities at the Park for training them, we offered, without charge, the use, until August 1st, of one floor of our new baryta building just being completed, for barracks and dark-rooms, and the use of our restaurant building, when not in use by our own employees, to feed the men. We also offered to furnish class rooms, a lecture room and recreation facilities.

The offer was accepted in a telegram dated January 30th, as follows:

"EASTMAN KODAK CO.,
"Rochester, N. Y.

"Your kind offer approved by Secretary of War.

SQUIER,
Chief Signal Officer.
per Williams."

Engineers and experts were sent at once by the Government to prepare plans and let contracts for installing the special fixtures and

for preparing sleeping accommodations for the men, who are now taking up their training.

The building which was selected for the barracks is the largest building at Kodak Park. It is 150 feet wide by 560 feet long and contains nine acres of floor space, the floor which is to be used by the men as a barracks and workrooms containing over two acres of floor space, which will amply accommodate seven hundred men at one time.

The men will be sent in detachments of about that number, and it is expected that it will take about a month of intensive training to fit each lot of them for the special work they are to perform.

Our restaurant building, which will be used by the men of the school, has ample accommodations for feeding two thousand persons at one time, and as the soldiers' meal hours will not conflict with those of our employees, there will be no question of our ability to feed a few hundreds extra, and do it well.

There are ample facilities for recreation at Kodak Park, both indoors and out, and the Kodak Park Athletic Association will welcome the soldier students and extend to them the use of the Park Assembly Hall and the athletic grounds.

The "observers" who operate the cameras from aeroplanes are not necessarily technical photographers. As they always make their photographs from a considerable elevation, they are working invariably at "infinity." They, therefore, do not need to focus nor

to judge the length of exposure. Everything is set for them by the ground men before they go aloft. All they need to do is to pull the lever that makes the exposures. And the instant they alight, their negatives are developed and the prints and enlargements made by the expert ground men, who not only know how to develop and print, but know how to use all the short-cut methods that save time.

The aerial photographer snaps a German position miles back of the lines and, in apparent retreat, at a speed of more than a hundred miles an hour, rushes back to his base, spirals at break-neck speed to his landing, quickly hands his exposures over to the waiting ground man. It is but a matter of minutes from the time that the exposure was made until the finished enlargement, still damp no doubt, is in the hands of the commanding officer. And the information it gives him may be vital, often is vital, to the success of his troops.

It is to the training of these highly important ground men of the Signal Corps that so much attention is now being given, that they may work accurately and rapidly. Fortunately, our facilities are such that they may be given the needed instruction promptly and thoroughly—will be quickly equipped with the knowledge which will enable them to be of as great service as the men on the firing line.

The location of the school in Rochester, is, of course, an emergency measure, and it will probably be moved later on to one of the big aviation fields. The school is

wholly under the Signal Corps officers detailed for the purpose, but they will be assisted by about fifty instructors taken from our technical staff in different departments, including the Research Laboratory, Eastman Professional School, Demonstrating force, etc. These men will be replaced by army instructors as fast as the latter become sufficiently familiar with the work.

While there will be no flying school here, there will probably be a few planes installed in one of the parks, which has been offered by the city, and these will be used to make photographic experiments in connection with the work of the school.

Through the acceptance by the War Department of our tender of the facilities at our command, Rochester is more than maintaining its claim to the title, "The Photographic Center of the World."



"PIGGY-BACK"
Made with a Kodak

PORTRAITS WITH WINDOW BACKGROUNDS

BY MILDRED PERKINS

Illustrated by the Author

THE daylight inside a building is never as strong as the daylight outdoors. The relative amount of daylight that enters a room depends on the size of the openings (windows and doors) through which it comes. When light passes through glass some of it is absorbed and some reflected by the glass so that only part of the light that reaches the outdoor side of the glass passes through it. The walls, ceiling and floor of the room also absorb light, and the darker they are the more light they absorb, so that in a dark-colored room the difference between the intensity of the light reflected by the wall just inside a window and the light reflected by the landscape seen through the window is very great.

While the range of light intensities that any film or plate can render is limited, yet Eastman film can record a very much longer scale of light intensities than are encountered in ordinary outdoor photography. This fact, combined with its non-halation qualities, makes Kodak film especially adapted, not only for outdoor photography, but also for the more exacting requirements of photographing unevenly lighted interiors.

Probably few experienced amateurs would undertake to make indoor portraits with an unscreened window for a background and expect to obtain pictures that would show detail in the figure, detail in the furnishings beside the window and at the same time show the outdoor view seen through the window. In the following article Miss Mildred Perkins explains how this can be done with Kodak film.

The illustrations accompanying the article are halftone reproductions of straight prints from straight negatives. Neither negatives nor prints were manipulated in any way.

THE EDITORS.

The indoor portraits, reproduced on pages 13 and 14, for which an unscreened window was used as a background were taken with a Kodak under light conditions that often exist in rooms that have windows on two sides.

These photographs were made late in the afternoon when the atmosphere was hazy. The light from the western sky, while much stronger than the light from the south, was so softened by the haze that the contrast between sunlight and shadow outdoors was much less than it would have been had the air been perfectly clear.

The diagram shows that the pictures were made in a room that had two windows, one on its south and one on its west sides. By using the south window through which a weak light came, as the background for the pictures, the side of the subject that faced the camera was chiefly illuminated by the strong light that came through the west window.

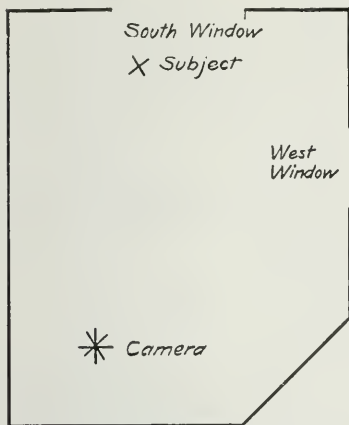
No reflector and no artificial light was used for aiding the illumination, but some of the light that came through both windows was reflected to the subject by the walls and ceiling.



ENLARGED FROM A KODAK NEGATIVE, BY MISS MILDRED PERKINS
Negative was exposed 30 seconds through largest stop on Single Lens Kodak



ENLARGED FROM A KODAK NEGATIVE, BY MISS MILDRED PERKINS
Negative was exposed 30 seconds through largest stop on Single Lens Kodak



*Diagram Showing Position of Camera
in Relation to Windows*

For making indoor portraits with an unshaded window for a back-

ground it is always best to use a window through which the weakest light comes for the background and to depend for the illumination of the subject on some other window through which a much stronger light comes. For this reason the late afternoon light will usually be found the most favorable for making such portraits in a room that has south and west or south and east windows, and the early morning light the most favorable in a room that has windows on the north and east or the north and west sides.

Experience has convinced me that a soft light is indispensable for this kind of work and that the light is usually much softer when the sun is near the horizon than during the midday hours.



ANSWERS TO QUERIES

Now and then an amateur writes to us asking that a certain subject be treated in KODAKERY and in his enthusiasm forgets to sign his name or perhaps signs it "A Kodaker." If the subject is one to which space cannot be given in the magazine we have no way of giving him the courtesy of a reply, because we don't know who or where he is. Please sign all letters so that if we cannot publish our answer to your question we can send a letter to you telling why.—ED.



A SPRING D(R)IVE

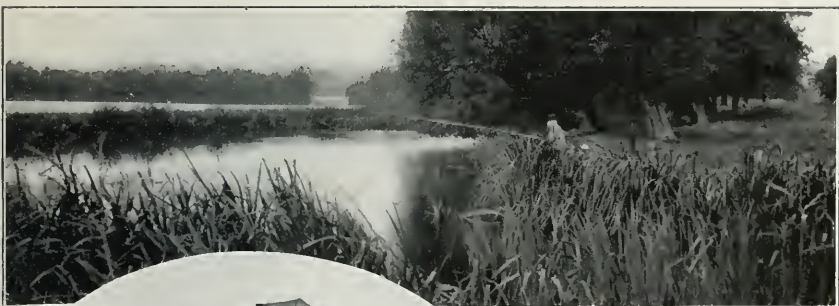
Made with a Graflex

OUT - DOOR DAYS



OPEN COUNTRY
STORIES BY
THE
KODAK





THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

IT is our intention to publish under the above title a serial account of the elementary theory of photography, explaining the action of light on films and papers, how the images are produced, and what is required to get the best results. We are sure that our readers will be interested in this account of the scientific side of their hobby, especially as we have been able to arrange for the articles to be written by Dr. Mees, director of the Kodak Park Research Laboratory, who has already written a considerable number of similar articles for KODAKERY.

Since Dr. Mees wrote a series of articles on the lens last year, a series republished in the booklet entitled "About Lenses," which can be obtained on request from us, it is not intended to include in this series any further discussion of the optics of photography.

THE EDITORS.

CHAPTER I

LIGHT AND VISION

Light is the name which we give to the external agency which enables us to see. In order to see things we must have something which enters the eye and a brain to explain it to us. That which enters the eye is what we call light.

The eye consists of two principal parts and can best be understood by analogy with the camera. In front it has a lens which forms an image on the sensitive surface, which is called the retina, the retina playing the same part in the eye that the film does in the camera. The retina, however, differs from the film in that when light falls upon the film it produces a permanent change, which can be developed into a picture, and if the light falls

upon the film for too long a time the film is spoiled, while the retina merely acts as a medium to transmit to the brain the sensation of the light that falls upon it, and when the light stops, the sensation stops and the retina is ready to make a new record. The retina behaves, in fact, like a film in which the sensitive material is continually renewed.

It is probable that this sensitive material in the eye is really of a chemical nature because it is apparently produced all the time, and when the eye is kept in the dark the sensitive material accumulates for some time so that the eye becomes more sensitive, while when a strong light falls upon the eye, the sensitive substance is destroyed more rapidly than it is produced and the eye becomes less sensitive.

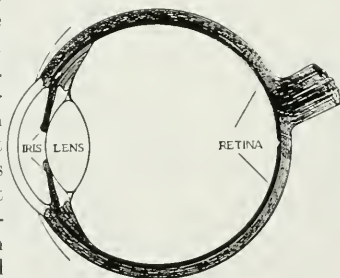
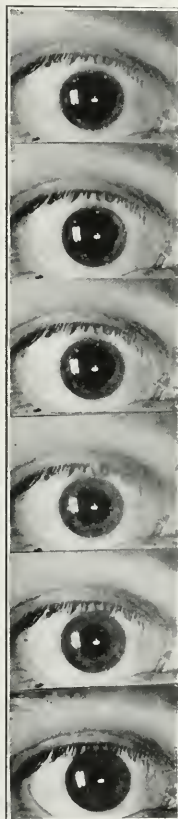


Diagram of the Human Eye showing its likeness to the camera.

*Iris Opening*

In this way, the eye has a very great range of sensitiveness. In bright sunlight it is as much as a million times less sensitive than it is after it has been kept for an hour in the dark, and it changes very rapidly, only a few minutes being necessary for an eye that has been in almost complete darkness to adapt itself to the glare of out-door lighting. In order to lessen the shock of changing light intensity, the lens of the eye is provided with an iris diaphragm just like that of a camera, but with the additional advantage that it operates automatically, opening and closing according to the intensity of the light. We have recently made a great number of measurements on the movements of the iris of the eye, the measurements being made by taking motion pictures of the eye when suddenly illuminated by a bright light, and the result of these experiments shows what a wonder-

*Iris Closing*

MOTION PICTURES ILLUSTRATING THE OPENING AND CLOSING
OF THE IRIS OF THE HUMAN EYE

ful instrument the eye is in its adaptation to changing conditions in the world around it.

The retina is connected with the brain by a great many nerve fibers, each fiber coming from a different part of the retina, so that when light falls upon any part of the retina, the intensity of the light is communicated by the tiny nerve coming from that part of the retina to the brain and the brain forms an idea of the image on the retina by means of the multitude of impressions from different parts of the retina.

The image on the retina is inverted like all lens images, so that we really see things standing on their heads, but the brain interprets an inverted image on the retina as corresponding to an upright external world, and although the eye sees things upside down, the brain has no idea of it.

What we observe is the light which falls on the retina, but this light comes originally from some external source which, in the case

of daylight, of course, is the sun. The light from the sun is reflected by the objects in the world around us according to their nature, and entering the eye it enables us to see the objects. When we look at a landscape we see that the sky is bright and the roads and fields are less bright, and the shadows under the trees are dark, because much of the light of the sun is reflected from the sky, less from the fields and roads and still less from the shadows under the trees. All these rays from the sun reflected from the natural objects in the landscape enter the eye and make a picture on the retina, which is perceived by the brain by means of the tiny nerve fibers coming from the retina to the brain.

But the eye not only perceives differences in the brightness of the light—it also observes differences in color—and in order to understand how this can be we must search further into the nature of light itself. And this we will take up in the next chapter.



A CORNISH COTTAGE
Made with No. 3A Folding Kodak



IN SMOOTH WATER

*Made with
a Graflex*

LIKE A CRAB—BACKWARDS

BY Q. E. D.

HARRY COOPER (that isn't his name) is a writer—I don't mean a would-be writer—the "woulds" are full of that type—but a regular, name-on-the-magazine-cover kind of a writer. And the way Harry works is like this: he tips back in his chair, looks at the ceiling and busies his brain, not with the plot of a story but with a suitable, catchy title. Once he has the title the story comes as a matter of course, but until he gets the title he is helpless.

This seems like setting the well-known cart before the equally well-known horse, but some of the best stories in the popular vein that you are reading were evolved in just this fashion. The title suggests the idea, the idea suggests the story.

The other day as I was laboriously attempting to title some of the prints in my album—"laboriously" because the pictures seemed to call for bright, clever captions—I suddenly thought of Harry Cooper—and then came the inspiration. If it would work for him with his stories, why wouldn't it work for me with my pictures. Why not vary the regular photographic routine occasionally and make pictures to fit preconceived titles?

I tried an experiment. Tipping back in my chair I let my brain scurry around for a good title. "Over the top" immediately suggested itself and then the idea of the youngster with his top as shown in the illustration on page 23. There is nothing particu-

larly brilliant about the thing, but unless you know the system it makes an impression on you. "That chap isn't so stupid after all," you say to yourself.

Now if I had happened to make a picture of Eddie spinning his top and then with the print in the book had, while searching for a title, hit upon "Over the top"—that really would have been clever. Mentally I would have been incapable of such an achievement. But the crab system makes it very, very simple.

You try it. Think of nothing at all—it's absurdly simple. Just empty out all the brain cells and prepare to entertain company. Some people achieve the perfect vacuum best by reading a page or two of Browning, but the ceiling method is less wearing and equally infallible. Suddenly there is a glimmering of an idea—it grows and grows until it takes definite shape. You've got your title.

Not for all of your pictures, of course, but the picture to snare the smile and lure the laugh—that's the sort where the title-before-the-print method works.



An under-exposed negative lacks sufficient detail. From such a negative we cannot make a print that will show more detail than the negative contains.

An under-developed negative lacks sufficient contrast. Contrast Velox records more contrast than the negative shows.



"OVER
THE
TOP"

*Illustrating the
Interesting Theory
Expounded on the
Opposite Page*



FIG. 1

Printed for Shadow Detail—Halftones under-printed

LOCALLY CONTROLLING THE PRINTING OF ENLARGEMENTS

IT was about an hour and a half before sunset on a day in June that the writer observed the scene pictured on this and the following page. The foliage on the trees was very dense and though the sun was shining brightly the light reflected from the shadow side of the large tree trunk in the foreground appeared weak in comparison with the light that was reflected from the buildings beyond.

A $\frac{1}{10}$ second exposure through stop *f*.11 (No. 8 on rectilinear lenses) was given and the film was developed in the tank in the usual way.

It is because of the strong contrast in the lighting of this subject that it was selected for illustrating how contrast between some of the

tones of a picture can be modified in making enlargements with a Kodak Enlarging Outfit. The illustrations are reproduced from enlargements that were made on the same grade of paper from a 3A Kodak negative.

Fig. 1 was printed for recording detail in the tree trunks. A 30-second exposure with the enlarging outfit was long enough for recording this shadow detail but it was not long enough for recording the tone values of the halftones, which are rendered much too light.

Fig. 2 was printed for suitably recording the halftones. A 60-second exposure was needed for doing this, but this 60-second exposure so much over-printed the shadows that too much of the detail in the tree trunks is lost.



FIG. 2

Printed for the Halftones—Shadows over-printed

Since 30 seconds was the exposure needed for correctly printing the shadows and 60 seconds the exposure needed for correctly printing the halftones it is evident that

the only way we can properly record the halftones without over-printing the shadows is to print the shadows for 30 seconds and the halftones for 60 seconds.



FIG. 3

Printing Locally Controlled, so both Halftones and Shadows are Correctly Printed

While this is a difficult thing to do in a satisfactory manner in contact printing it can be easily and satisfactorily done in making enlargements with the Kodak Enlarging Outfit.

The Kodak Enlarging Outfit consists of an easel for holding the paper on which the enlargement is to be made, a focusing camera fitted with a lens, a negative holder and a lamp house. The source of light (a 60 watt Tungsten lamp) is in the lamp house immediately behind the negative. The light passes through the negative to the lens and the lens projects the image in the negative to the easel. The size of the enlargement depends on the distance between the negative and the lens, which can be regulated by increasing or decreasing the bellows extension, and on the distance between the lens and the easel, which can be regulated by moving either the easel or the enlarging camera.

As the enlarging is done in a darkroom, or in a room that can be made dark at night, the enlarged image shows up brilliantly on the easel. The space between the lens of the enlarging camera and the easel is great enough, whatever size of enlargement is to be made, that we can shade some parts of the enlargement, that is, we can prevent the light from acting on some parts of the picture while it is printing the other parts.

Fig. 3 was made by printing the entire picture for 30 seconds and then stopping the printing of the tree trunks while all else within the picture area was printed 30 seconds longer, or a total of 60 seconds. This was done by holding two strips of cardboard, one in each hand, about $\frac{1}{3}$ the distance from the lens to the easel, in such a position that the cardboards prevented the light from reaching the large tree trunk on the left and the group of trees on the right. The cardboard strips were of the size and shape needed for shading a trifle less than the areas in which the printing was to be stopped, but they were kept moving back and forth over these entire areas so the margins of the shaded parts would blend into their surroundings and no evidence of the shading would appear in the finished picture.

While enlargements of the quality we desire can be made from the majority of our negatives without locally controlling the printing, we can, by the method described, increase or decrease the contrast in our pictures and thus produce almost any effects desired from all but hopelessly incorrectly developed or hopelessly under-exposed negatives.

The method is so simple that anyone can employ it.

In future articles we will further explain and illustrate how to utilize the advantages this method offers.



SHOULD you change your address be sure to notify us at once, giving both your old and new addresses, and also the date when your subscription expires.

FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published fifty-six months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed, and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

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TORONTO, CANADA.

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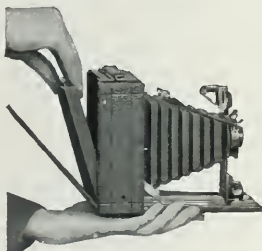
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contain 12 exposures of Speed Film of the highest quality, and are supplied in all sizes up to and including 5 x 7.



Open the back, and drop in the Pack; then draw safety cover, and the first film will be ready for exposure.



To change film, after each exposure, draw the paper tabs numbered consecutively from 1 to 12.

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The Kodak Film Tank

Develops your films as they ought to be developed.

The Kodak Amateur Printer

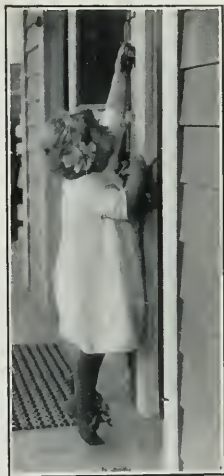
Prints your negatives—if you use Velox—as they deserve to be printed.

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The combination offers the maximum of convenience, coupled with that quality for which the name "Kodak" stands.

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Every picture you make is brilliantly shown upon the Focusing Screen, right side up, the size it will appear in the finished print.

You watch the changing composition, and adjust the focus, up to the very instant the exposure is made.

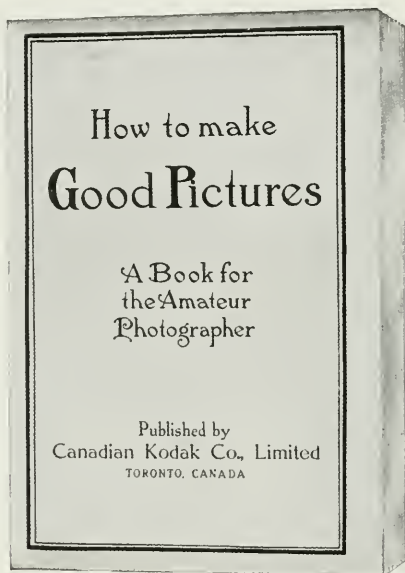
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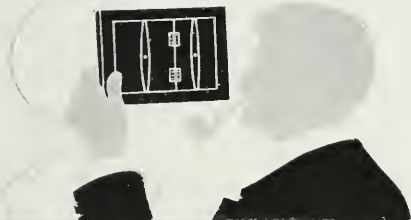
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Prints by Gaslight

The result of using

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The Kodak Range Finder

By means of this device built into the standard beneath the camera shutter, guess-work focus is eliminated—the Kodak Range Finder finds the focus, finds it quickly and with scientific precision.

Fitted in the 3A Autographic Kodak Special and the 1A Autographic Kodak Special—an exclusive feature of these two models.

THE PRICE.

No. 1A Autographic Kodak Special with Kodak Range Finder and Kodak Anastigmat Lens <i>f</i> .6.3	-	-	-	\$50.00
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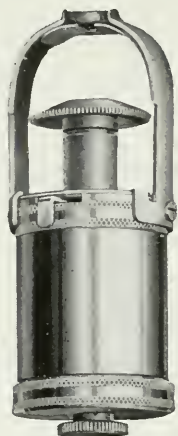
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



JULY 1918

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.



*You can take the picture
and still be one of the
group with a*

KODAK SELF TIMER

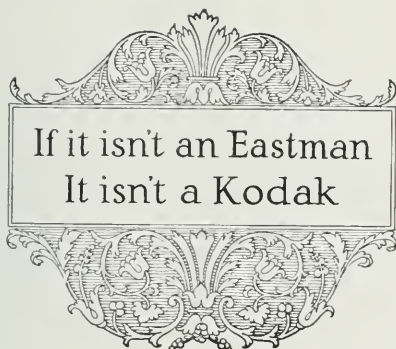
After you have composed the view and focused the Kodak, the action of the Kodak Self Timer allows plenty of time for you to get in the picture. Intervals ranging from approximately one-half second to three minutes (controlled by an adjustable air-lock screw) elapse between the time you set the Self Timer and the time the Self Timer releases the Shutter.

THE PRICE.

Kodak Self Timer - - - - - \$1.50

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If it isn't an Eastman
It isn't a Kodak



THE FOUNTAIN
Made with 3-A Folding Kodak

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. V

JULY, 1918

No. 9



A PEASANT COSTUME MEDLEY

THE FLUTTER OF THE DANCE

BY GRACE MERRILTON

THE growing popularity of classic dancing, and the revival of folk dancing in all of its picturesque variations, has introduced an extremely decorative element into outdoor life and furnished the amateur with his Kodak an endless variety of settings for scenic work.

In garden paths and on well-cropped lawns the modern sprites seem to illustrate something we find suggested in poetry—and in music. The fashion of "interpreting" music has been beautifully developed. In fact, so much of beauty is added by music that the photographer needs to choose his



IN GRECIAN ROBES

moment with a great deal of skill.

This adds its own charm to the adventure of capturing these fairy figures in a happy combination of

lines. Breeze furnishes another problem at times. The importance of the slant of light is here as elsewhere a prime factor, and a



TO SPIRITED AIRS

tantalizing one, for the dramatic alignment of the figures is likely, especially in a musical interpretation, to undergo constant changes of front.

I can assure you from experience that there is some excitement in getting the best out of a lawn dance—in watching for composition with the composition elements

under such constant change, and in acting quickly when the instant is known to have come.

But what a happy reward, what wonderfully fascinating pictures these little girlish figures, flashing with light, fluttering, fluttering always, do contrive to give us for our pains! I hope you agree with me.



OLD BELFRY, BRUGES, BELGIUM

Made with a Kodak



KILLDEER PLOVER AND EGGS (SELF PORTRAIT)

Camera set up and focused on nest. Procured through medium of thread running from camera shutter across nest

WILD BIRD SELF PORTRAITURE

BY HOWARD TAYLOR MIDDLETON

With Premo photographs by the author

MY very first wild bird self portrait was presented to me by a robin. I found her sitting upon her four beautiful blue eggs in a slender pine, the nest being about six feet from the ground.

As I watched her, an inspiration came to induce her to photograph herself. I tied an appetizing luncheon of angle worms to a bit of bread, and after driving a small staple into the tree trunk above the home of Madam Robin, I passed the thread through it, making the end fast to the already set up and focused camera. This operation left the worms dangling in tempting proximity to her beak upon her return to the nest, and I

experienced very little trouble in procuring several interesting pictures by this novel method.

When bait is not available, it is possible to procure a self portrait by stretching a thread taut across the nest in such a way that the weight of the bird's body, as she settles down upon the eggs, will snap the shutter.

To those who are fortunate enough to find the abiding place of a screech owl, fine opportunities for self-portraiture present themselves. When the afternoon shadows grow long in the forest glades, Screecher comes forth from his hole in the hollow tree to gaze around a bit before starting out



BELTED KINGFISHER (SELF PORTRAIT)

The bird touched thread stretched across opening

upon his nocturnal hunt for food. If he finds some delicacy, such as a mouse or English sparrow, near his hole, he will lose no time in appropriating it, and, if the bait is attached to the camera shutter, that will mean a picture.

Not long ago, I was lucky in

finding a screech owl living in a wild crab-apple tree, and I at once determined to persuade him to sit for his portrait. With this end in view, I set up the camera and focused it to take in the hole and enough of the surroundings to form an attractive background. I then



MADAM ROBIN REDBREAST
Photographs herself

placed the dead body of a sparrow within easy reach of my prospective subject, ran a thread from it to the camera shutter, and departed for a period of several hours. When I returned, I found the thread broken and bait gone, the photograph of the screech owl accompanying this article proving the success of my experiment.

Another bird that lends himself well to self portraiture is the hawk, and I have very often used a dead chicken to lure him to the camera. Once or twice I have come upon this demon of the air at his fresh kill. In that case I focused the camera upon the body of the victim, covered it very carefully with brush, and arranged the thread so that when the hawk returned to his interrupted feast he would alight upon it and snap the shutter.

The portrait of the big red-tail illustrating this story was procured in an unusual manner. I had noticed that he was in the habit of resting for hours at a time almost every day upon a certain limb, and, upon investigating the tree, I found the trunk to be hollow, and containing a fine resting place for the camera. Therefore, I set up my instrument inside the tree trunk, with thread stretched taut just above the limb. This accomplished, I went into hiding at a safe distance to watch and wait. At the end of an hour, with the mercury in my pocket thermometer hovering near the zero mark, the hawk came to his



SCREECH OWL
*Photographs himself by placing claw on
dead sparrow attached by thread
to camera*



BANK SWALLOW LEAVING NESTING HOLE

Camera was set up on stake driven in sand and fitted with Eastman Universal Clamp with thread running across mouth of tunnel!

perch and posed for life. He paid no attention to the click of the shutter, and did not take wing until I approached. I was unable to get more pictures of Mr. Red-tail, however, although I tried repeatedly.

To the readers of KODAKERY who have a sand cliff near their homes, I would suggest that they try for self portraits of bank swallows and kingfishers during the nesting period. Focus your camera upon



Copyright by Howard T. Middleton

RED-TAILED HAWK, SELF PHOTOGRAPHED

the hole in the bank where the bird is nesting, and then, after stretching thread across the mouth of the little tunnel (the nest will be found three feet or more from the entrance), climb to the top of the bank, and stamp vigorously upon it. This will drive the tenant out of her front door, and as she emerges, she will encounter the thread and photograph herself in a most unusual pose. A fast lens and shutter are necessary to obtain pictures of this kind as the bird leaves the nesting hole with almost the velocity of a bullet.

Among the things that make wild bird self portraiture such good fun is the element of doubt that enters into it. When you go into your darkroom to develop negatives containing the images of birds that have photographed themselves during your absence

from the scene, you never know just what to expect in the way of a picture. Usually, you may be fairly sure of the species of bird that will meet your view in the developed negative, but the pose you must leave to chance, and this lends great zest to the pastime.

Of the different varieties of wild life photography—and I have invaded them all—self portraiture furnishes by far the most enjoyable sport.



With a Universal Clamp you can fasten your camera securely to a fence, to the branch of a tree, to a stick stuck in the ground, or to any other available support.



TEACHING THE YOUNG IDEA
Made with a Premo



A PYROTECHNIC DISPLAY
Made with a Kodak



IN THE DAISY FIELD

Made with 2A Brownie

A TRUE STORY MINUS NAMES

WE were sitting in the smoking compartment of a sleeper. The usual line of talk had been going on—the grouch had relieved himself of a barrel of criticisms on the poor train service, the fat man had just settled the food administration problems and a few of the rest of us had decided upon when we would end the war.

The quiet man in the corner took a letter stamped "Passed by the Censor" from his pocket and tapped it fondly on his knee.

"Just had a letter from the kid," said he. "He would probably resent my calling him kid for he has been for two years with the army, yet he will never be anything but the kid to me."

"Does he get plenty to eat?"

this interrogation being from the fat man.

"Yes, and a pretty comfortable billet except when he's on for his turn at trench work. He has never complained about anything, yet I've felt that, reading between the lines, there was a strain of homesickness about his letters. Really, you know he ought to be at about his sophomore year in college now and having the time of his young life instead of fighting the boches. But he wouldn't have it that way. Went to the Armouries and enlisted."

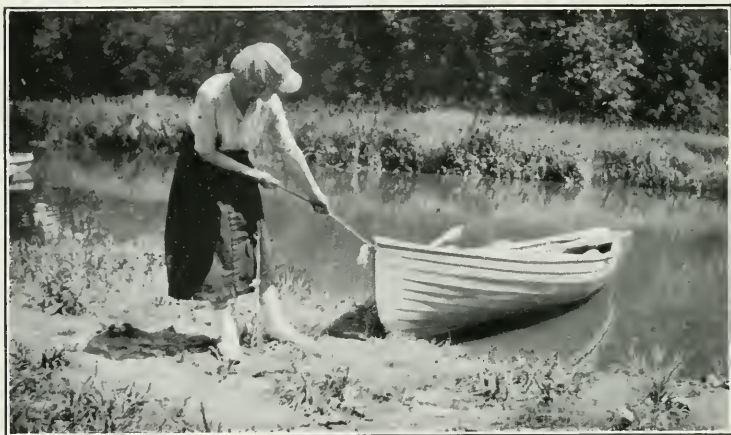
"Am I proud of him?" you ask. "Well say, did you ever see a peacock in the middle of the lawn on a bright June morning? That's me—er, excuse me. It is I.

"But that homesickness began



• NOTRE DAME, PARIS

*Made with 3A Folding Kodak; through Color Filter,
stop, 16; $\frac{1}{2}$ sec. exposure*



ALL ASHORE
Made with a Premo

to bother me a bit. I knew how he felt—I spent a summer in Nevada when I was about his age.

"And this is what I did: I got out the family Kodak and put it to work. Mother and little kid sister were first, of course. Yes, and they snapped me. Then I photographed the house and the dog—he's a big, husky Airedale that nearly moaned his heart out when the boy went away. But I didn't stop there. I made a general view of our street, I caught a shot at a detachment of our boys in khaki, marching to the station—on their way to help Dick—yes, that's his name, Dick.

"In this picture were several of his old pals. I hope they meet him in Berlin.

"But I was just beginning. Dick never cried his eyes out to go to church or school, but I pho-

tographed the old First M. E. and the high school just the same. The boy was a junior member of the Golf Club, so I took several shots out there.

"Yes, I play. Oh, about 88—but Dick was getting where he could give me a—but that's another story.

"Then I made a few pictures on Main Street—not forgetting the postoffice. I thought I was about through till Mother made a suggestion: 'How about a picture of Helen Renwick?'

"Great! I got some good ones too, out on the tennis court where they used to play—and then, Dick is a chip of the old block you know, I thought of Harriet and Frances and the little Robinson girl. I took them all. There were twenty-five unmounted prints, postcard size, in the batch I mailed the boy.

"He sent an enthusiastic acknowledgment by first mail and this is what he says now. I'll read you one paragraph."

The quiet man in the corner opened the envelope and read: "Had a regular house-cleaning this morning. Had accumulated altogether too much impedimenta for a sergeant to carry around, so out went a lot of stuff. But, believe me, Dad, I'm hanging onto those Kodak prints. They were more welcome than a check, and that's going some!"

"If you and the Mater go down

to the shore this summer, bang a few of the old familiar spots for me, won't you?—the old oaken bucket stuff, you know. And say, Dad, just between you and me, by fair means or foul, get one of that little blonde from Rutland. You know the one I mean. Peggy, we called her. I think her name is Winthrop, probably Margaret Winthrop. *You* can find her."

The quiet man in the corner put away the letter and took a book from his pocket and began to read. The book was entitled, "How to Make Good Pictures."



AN ALPINE VILLAGE
Made with No. 3 Folding Kodak



With British Flyers in Italy



British Troops in an Italian Village



A Captured Gun

WAR DAYS

VARIOUS GLIMPSES AFFORDED
BY BRITISH OFFICIAL
PHOTOGRAPHS



Carrying Coal Between a Ship's
Boilers



A Flanders Mud Field



Over the Top, in Camouflage



GROUP 1

*When Best Rendering of Distance is Desired, Class such a Subject as
Extremely Distant Landscape*

OUTDOOR EXPOSURES

SINCE the majority of the outdoor subjects we photograph may be classed in four groups and the exposure that each group requires is easily memorized the outdoor exposure problem can be reduced to a single question of determining in which group our subject belongs.

By examining our illustrations, which bear the number of the group in which they are classed in the accompanying exposure table, it should be easy for the amateur to rightly judge the exposures to give out of doors and thus secure negatives that will make good prints.

OUTDOOR EXPOSURE TABLE

*For 2½ hours after sunrise until 2½ hours before sunset on days
when the sun is shining*

	Shutter Speed	Rectilinear Lenses Stop	Anastigmat Lenses Stop
GROUP 1—Snow, Sea and Beach Scenes— Extremely Distant Landscapes	1/25	32	22
GROUP 2—Ordinary Landscapes Showing Sky, with a Principal Object in the Foreground	1/25	16	16
GROUP 3—Nearby Landscapes showing little or no sky—Groups, Street Scenes	1/25	8	11
GROUP 4—Portraits in the Open Shade, not under Trees or the Roof of a Porch—Shaded Nearby Scenes	1/25	4	8



GROUP 1

In Sea and Beach Scenes Light Tones Predominate



GROUP 2

Prominent Objects in Foreground, Under Open Sky, Should be Classed with Ordinary Landscape



GROUP 2

When detail is wanted in Shore Boats they should be listed in Landscape Class

The exposures recommended in the preceding table are neither the shortest nor the longest that will give good results with Eastman Film. They are averages so calculated that the exposure table will be as good a guide on sunny days in winter as on days of summer sunshine.

When the day is cloudy-bright the exposures should be from two to three times as long, and when the day is dull the exposures should be from four to eight times as long as those mentioned in the table.

With fixed focus cameras of the box type, and with folding cameras that do not have the stop mark-

ings shown in the table, the exposures should be:

For Group 1, a snapshot through the next smaller stop than the one used for ordinary snapshot work.

For Groups 2 and 3, a snapshot through the stop ordinarily used.

For Group 4, the camera must be placed on a tripod or some other rigid support, the shutter set for a time exposure and an exposure of from $\frac{1}{2}$ second to 1 second given. It takes about $\frac{1}{2}$ second to mentally pronounce "one hundred" and about 1 second to mentally pronounce "one hundred and one."

When about to photograph a scene similar to the one shown on page 18 we should remember it is



GROUP 3

Street Scenes Require Twice as Long an Exposure as Ordinary Landscapes

the view in the distance that makes the picture, and even though the foreground contains some dark tones these dark tones occupy but a small part of the picture area. Such a subject should be classed as an extremely distant landscape and the exposure should be that recommended for Group 1.

In the marine view pictured on page 19 it is the light tones of the sky and the water that predominate, the bit of land and the boats merely furnishing the lines for the composition and the shadows for emphasizing these lines. Such a scene belongs in Group 1 because it is unmistakably a marine view; but the picture on page 20 does not represent a marine view. The boat was photographed at short range so that it is a prominent foreground object and the foreground itself contains dark tones which are prominent in the picture. When



GROUP 3

When Little or No Sky is Visible the Exposure Should be as Long as for Street Scenes



GROUP 4

Portraits in the Shade but not actually under roof of porch or other cover

detail in a dark toned foreground is desired the exposure should be that recommended for Group 2.

The picture of sheep on page 19 and the brook scene on page 21 are both landscape subjects, but the

sheep picture is classed in Group 2 because it is an ordinary landscape scene showing sky, and the greater part of the subject receives the unobstructed light from the sky, while the brook scene is classed in



GROUP 4

In Portrait Class because a Shaded Scene

Group 3 because it shows practically no sky and contains more dark than light tones.

Street scenes usually contain many dark tones and unless we expose for these tones the near objects will be rendered void of detail.

In order to avoid squinting eyes and the harsh contrasts which result when one side of the face is in sunlight and the other side is in shadow outdoor portraits should always be made in the shade.

The picture at the top of page 22 was made under favorable conditions. The children's faces are evenly lighted, due to the fact they were in the shade of the building and yet received the unobstructed light from the sky.

Portraits should never be made under trees or under the roof of a

porch because in such places the faces will be lighted from the side only and a side light usually gives unsatisfactory effects in portraiture. Both top and side light are needed for obtaining pleasing likenesses.

The lower picture on page 22 is not a portrait. It is a story-telling picture in which the features of the boy are not shown. This illustration was selected because it is a kind of picture often made in shaded places with the same exposure that is given for subjects out in the sunshine. It contains strong contrasts of light and shade. Had it received the exposure recommended for Group 4 the contrasts would have been much reduced, so that a softer print, containing more detail, could have been obtained.

Photographs and Letters Which the Boys Carry into Battle

“THERE are two things the soldiers *always* carry with them: photographs of the ‘home folks’ and letters from the ‘home folks.’ The pictures, often with a small Testament, are always in that breast pocket over the heart. I think they sometimes are put there as a kind of charm to ward off bullets. Anyway, that’s where they always are. And the look in a man’s face when he shows you the picture of his mother, his wife, his children, and you say—as you always do—they are very beautiful, will bring tears to your own eyes.”—Charles W. Whitehair, in April “*American Magazine*.”

THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

CHAPTER II—THE NATURE OF LIGHT

THE nature of light has long been a source of speculation, and at one time it was generally held that the light which entered the eye consisted of small particles shot off from the source of light, just as at one time it was held that sound consisted of small particles shot off from the source of sound which struck the drum of the ear. This theory of light has the advantage that it immediately explains reflection; just as an india rubber ball bounces from a smooth wall, while it will be shot in almost any direction from a heap of stones, so the small particles of light would rebound from a polished surface at a regular angle, while a rough surface would merely scatter them.

This theory of the nature of light was satisfactory until it was found that it was possible by dividing a beam of light and slightly lengthening the path of one of the halves, and then reuniting the two halves together again, to produce alternate periods of darkness and light similar to the nodes of rest produced in an organ pipe, where the interference of the waves of sound is taking place. It could not be imagined that a reinforcement of one stream of particles by another stream of particles in the same direction could produce an absence of particles, while the analogy of sound suggested that just as sound was known to consist of waves in the air, so light also consisted of waves.

Light cannot consist of waves in

the air, partly because we know that it travels through interstellar space, where we imagine that there is no air but through which we can still see the light of the stars, and also because the velocity of light—nearly 200,000 miles per second—is so great that it is impossible that it could consist of a wave in any material substance with which we are acquainted. It is, therefore, assumed that there exists, spread through all space and all matter, something in which the waves of light are formed, and this something is termed ether, so that it is generally held that light consists of waves in the ether.

Just as in sound we have wave notes of high frequency, that is, with many waves per second falling upon the ear, which form the high pitched notes, and also notes of low frequency where only a few notes a second fall upon the ear forming the bass notes, so with light we may have different frequencies of vibration. Since the velocity of light is the same for waves of different frequencies, it is clear that the waves of high frequency will be of different wave length from those of low frequency, the wave length being the distance from the crest of one wave to the crest of the next, and if we obtain waves of different lengths separated out, we shall find that the color depends upon the wave length. Fig. 1 shows the average length of wave corresponding to light of various colors, the diagram being drawn to scale.

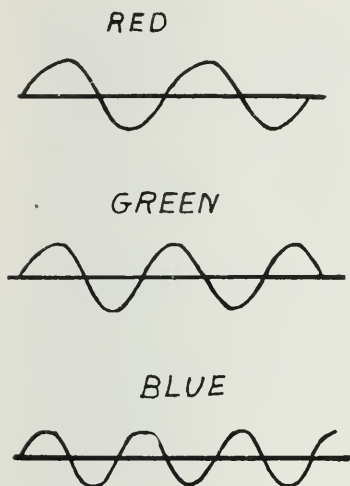


FIG. 1

Showing the Relative Wave Lengths of Primary Light Colors

White light consists of mixtures of waves of various lengths, but if instead of letting the mixture of waves, which forms white light, fall directly on the eye we pass white light through an instrument known as a spectroscope, which changes the direction of the different waves by amounts which differ according to their lengths, we get the white light spread out into a band of colors which we call the spectrum, and we can scale this spectrum by means of numbers representing the lengths of waves.

Fig. 2 gives a simple arrangement of the spectrum, the numbers representing the wave lengths in units which are ten-millionths of millimeters. It will be seen that the visible spectrum extends from 7,000 to 4,000 units, wave lengths of 7,000 units corresponding to the extreme red and 4,000 to the darkest violet that can be seen, while the brightest region of the spectrum stretches from 5,000 to 6,000 units and includes the green and yellow colors. The spectrum is equally divided into three regions which may be broadly termed—red 7,000-6,000, green 6,000-5,000, and blue-violet 5,000-4,000.

If we get a piece of colored glass which lets through only the portion of the spectrum between 6,000 and 7,000, then we should have a piece of red glass, a glass which lets through from 5,000 to 6,000 would be a green glass, and one which lets through from 4,000 to 5,000 would be blue-violet in color, so that from the spectrum we already derive the idea that light can be conveniently divided into three colors, which we may call the primary colors—red, green and blue-violet. It is probable that this is connected with the structure of the retina, and one theory holds that there are three sets of receiving nerves in all parts of the retina corresponding to the



FIG. 2

A Simple Arrangement of the Spectrum

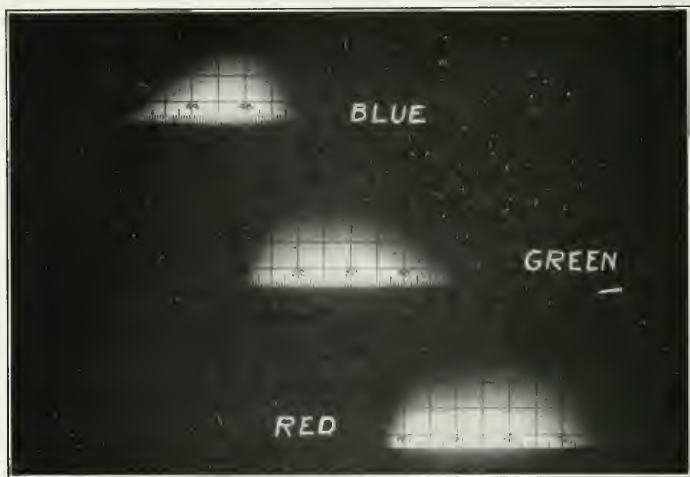


FIG. 3

Portions of the spectrum transmitted by glasses of the three primary colors—red, green and blue-violet

three primary colors—red, green and blue-violet.

Now, if we let white light fall upon anything, such as a piece of white paper, which reflects all the wave lengths to the same extent, then the reflected light remains white and we should say that the object on which it falls is uncolored, but if the object absorbs some of the wave lengths of the spectrum more than others, then it will appear colored. Thus a piece of red paper appears red because from the white light falling upon it it absorbs some of the green and blue-violet light but reflects all the red light and, therefore, appears red. In the same way a green object absorbs both red and blue-violet more than it absorbs the green light and so looks green, and a yellow object absorbs the blue,

reflecting the red and green of the spectrum and so appears yellow.

Light waves differ not only in their length but in their amplitude, that is, in the height of the wave, and the amplitude or height of the wave controls the intensity of the light just as the wave length controls the color. The eye, therefore, can detect differences in brightness which depend upon amplitude, and also differences of color which depend upon wave length.



Yellow is a brighter color than green but without a filter it photographs as dark as green. By using a Kodak Color Filter a picture can be made in which yellow flowers will appear lighter than the green leaves of the plant.

KODAK SERVICE

As a user of a camera you wish to make good pictures. As manufacturers of cameras and photographic supplies it is for our interest to assist you in securing good pictures.

If you meet with problems in your photographic work that you cannot easily solve submit them to us. We have a staff of workers, each of whom is a specialist, who will take pleasure in assisting you.

If you fail to get satisfactory prints from your negatives send us both the negatives and the prints. Give as full data as possible. We would like to know the month, the time of day, the stop used and the exposure given when the negatives were made, also the name and grade of paper on which the prints were made.

By examining the negatives we can tell whether exposure and development were correct, and by comparing the prints with the negatives we can tell whether the trouble lies in the printing or in the making of the negative. Both negatives and prints will be promptly returned.

The following extract, from one of many thousands of letters we have received, suggests what Kodak service, which is rendered *free of charge*, may mean to you.

"I also wish to take this opportunity of thanking you for your many suggestions and services of the past, which suggestions, I am glad to say, proved a big factor in my photo work and were always very accurate and to the point."

* ADDRESS ALL COMMUNICATIONS

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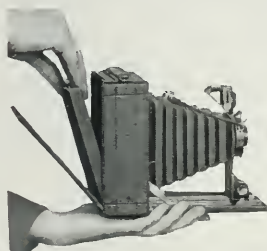
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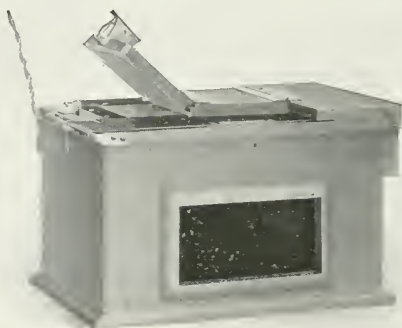


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with just the expression—just the pose you want, may be easily made with the

Graflex Camera

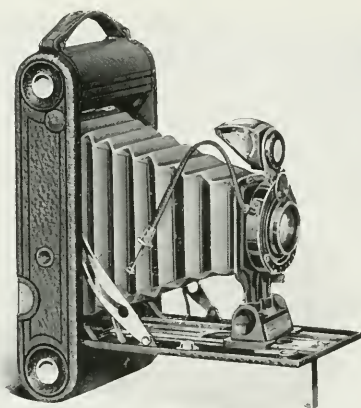
You watch the subject upon the Focusing Screen, full picture size, up to the very instant the exposure is made.



The Graflex is operated in the same manner for Views or Speed Work.

*Ask for the 64-page Graflex Catalogue,
free at your Dealer's or by mail.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



Price
\$15.50

Pictures
2 $\frac{7}{8}$ x4 $\frac{7}{8}$

2C KODAK JR.

The pictures are of the pleasing panel shape, giving the high, narrow proportions that are so well suited to portraits—and when the camera is held horizontally, for landscapes and the like, it gives a long, narrow picture that is almost panoramic in effect.

And this long, narrow picture makes possible a thin, slim camera that fits the pocket—a detail that is often important, and always convenient.

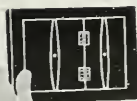
The lenses are the best of their respective types, are adapted to this particular camera and each one is *individually tested*.

THE PRICE.

No. 2C Autographic Kodak Jr. with meniscus achromatic lens	\$15 50
Ditto, with Rapid Rectilinear lens	17.50

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The Kodak Letter

The morning letter of cheer and hope has been written and with it pictures are going, simple Kodak pictures that tell the home story,—pictures that will bring a cheery smile to his face, a leap of joy to his heart, that will keep bright the fire of courage in his soul as with the home image fresh in mind he battles for the safety of that home and for the honor of his flag.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



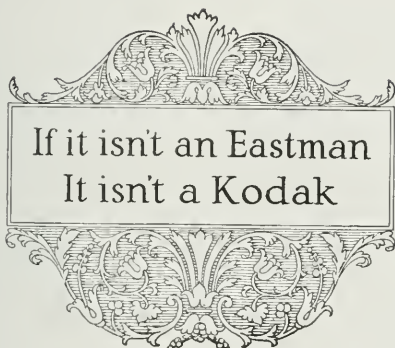
AUGUST 1918

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

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SHE BAKES BREAD FOR SOLDIERS
From British Pictorial Service



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. V

AUGUST, 1918

No. 10



BRITISH WOMEN BAKING SOLDIERS' BREAD IN FRANCE

THE SOLDIER'S BREAD

BY ALBERT CRANE WALLACE

Illustrated with Official Photographs from British Pictorial Service

WAR was once considered very much a man's affair. Even when the present dreadful conflict began the world

had no thought of any but the old traditions—of men in the battle front and women at home regretting that they were there.



THE WOMEN ARMY BAKERS AT WORK

An old-fashioned British general is quoted as having said, at the beginning of the war, to a zealous woman: "Madame, we acknowledge your patriotism, but the army is no place for women."

Nevertheless the army has become a place for women. The world never before saw so many women in uniform—driving cars, managing bakeshops, making munitions, telegraphing, telephoning, signalling and even at work on practical engineering jobs.

In England they organized the Women's Army Auxiliary Corps which thousands of women have joined and in which are energetic workers for every sort of activity excepting actual fighting. Stretched along behind the front—and very

close to the front in many cases—are units of this extraordinary army.

Every part of the service has to have a nickname, so the initial letters of the corps title have been gathered up and the organization and its members are called "Waacs."

The Waacs are everywhere. They have become a real power. The war could not be run without them save at a tremendous loss. They are real soldiers. They have enlisted for the duration of the war.

But it is of the Waac cooks in particular that I am to speak here, for the camera has been busy in picturing some of their activities.

I leave you to imagine whether



GROUP OF WOMEN BAKERS OF THE WOMEN'S ARMY AUXILIARY CORPS, COLLOQUIALLY KNOWN AS "WAACS"

food cooked by women is not likely to be more fit to eat than food cooked by men who never cooked before in their lives.

I leave you to imagine how grateful the soldiers are for this womanly help, how much less likely they are to grumble, how much better a slice of bread is likely to taste when the chance is that it has been molded by a girl as pretty as that girl in the frontispiece!

Soldiers are very human, and because they are very human they need the cheer of such thoughts as much as they need the good food itself.

These Waacs have to work hard. Sometimes the cooks, like the signallers and workers in other divisions of the service, have to plod in night and day shifts. But they work with a will. They gather to

sing, keep on smiling (as the camera man has proved) and seem to know that they are helping to win the war.

Other wonderful things are being done in France by the Waacs. It is said that British women are tending more than 50,000 soldiers' graves in the stricken country. Waacs are working on airships. The manager of a big ship yard on the Clyde is quoted as saying that he will launch a destroyer built entirely by women.

You see that the old notion of "woman's place" and "woman's work" is being pretty hard hit, along with a great number of other old notions.

Who can doubt that out of the turmoil will come a spirit that will mean something of vital value to civilization?

A GRAFLEX ADVENTURE IN WILDLIFE LAND

BY HOWARD TAYLOR MIDDLETON

IT was a bitterly cold day. The ice-bound Rancocas resembled a field of snow rather than a tranquil river, and the hunting grounds of the wild creatures were buried deep beneath a heavy crust of impenetrable frost.

It is during a period of excessive cold, such as this, that the little people of the wilderness are easiest to approach. In their brave battle against the elements for existence, they take chances that would cause them to shudder in sheer terror at other seasons of the year—but more of this anon.

Our good friend, the Game Warden, had brought us word of a covey of quail badly in need of food to carry them over until the next thaw, and, after having obtained from him an accurate description of their whereabouts, Marie and I sallied forth with a supply of grain for them. We had not traveled far, Marie with the Graflex, I with the bag of grain, when she called my attention to a big red-shouldered hawk soaring low over our heads.

"That fellow's got something on his mind, partner mine," she remarked earnestly. "I've been watching him for several minutes and he acts to me as if he had a dinner 'marked down' in that little thicket yonder, and our presence here is all that's keeping him from it. Let's investigate!"

As we walked forward, Mr. Red-shoulder screamed his defiance and climbed higher into the sky.

"I see it! It's a cottontail! Look at the foot of that black walnut

over there," and Marie pointed with a mittened hand. Yes, there he was in his bed at the base of the tree, and, from his appearance, he was slowly perishing both from cold and starvation. He did not move as we approached, and when Marie stooped and stroked him, he only blinked and snuggled closer in his "squat."

"Better take him home and thaw him out, don't you think?" I suggested.

"Sure thing, but we'll get a picture first!" my little wife exclaimed excitedly.

"If we set up the Graflex near the rabbit and run a cord from the release to a hiding place among those little pines over there, we'll get a shot at his hawkship when he comes for his dinner."

We clamped the camera rigidly to a stout sapling, focused it upon the rabbit, and, after covering it carefully with pine boughs by way of camouflage, slunk away into concealment, trailing the cord after us.

Mr. Red-shoulder was suspicious, but he was terribly hungry as well, and it was not long before his circling flight brought him nearer to the banquet awaiting him at the foot of the black walnut. Finally, he volplaned to a limb directly over the rabbit, perching there for a moment with head held low and wicked eyes shifting doubtfully from his prospective prey to the cone-shaped bunch of branches just beyond. Then, taking his courage in both claws, so to speak, he swooped downward. Before he



SNAPPING THE HAWK AND SAVING THE RABBIT

could alight, I pulled the cord, and up went the hawk, cursing us soundly in his disgust and disappointment.

I carried Sir Cottontail home in

the capacious pocket of my mackinaw. He tarried with us for almost a week, partaking of many stalks of celery and red apples which he seemed to relish greatly. One

morning upon going to give him his breakfast as was our custom, we found a neatly gnawed hole in the side of the wooden crate in

which we had made a cozy home for him. Our ungrateful guest had departed in the night without so much as a good-bye.



REMOVING PASTE MOUNTED PRINTS FROM CARDBOARD MOUNTS

SINCE paste is soluble in water the obvious way to remove a paste mounted print from a cardboard mount is to place it in water and leave it there until the water has thoroughly softened or dissolved the paste.

This will take from a few minutes to an hour or more, depending on the composition of the paste and the thickness of the print.

After the paste has been thoroughly softened the print can be removed. Should the edges of the print separate from the mount the best method of removing it will be to allow print and mount to float, face down, on the surface of the water until the print slides off the mount.

If the edges of the print do not loosen after a two-hours immersion a penknife should be used, not for lifting the print, but for splitting the mount. As much of the cardboard as the water has softened will readily tear off the back of the mount. After this has been removed the card should be returned to the water and sections of the cardboard removed as soon as they become soft enough. In this way the entire mount can be removed from the back of the print.

The print should never be stripped from the mount, for the danger of tearing or cracking it by the stripping method is very great. After the last layer of cardboard has been removed, by rubbing with the finger tips while the print lies, face down, on a sheet of glass, the paste that still remains on the print can be readily washed off with a tuft of wet cotton.



PICTURES

Made with No. 2 Folding Brownie



After you have composed the picture, set the shutter for a snapshot and have taken your position in the group, the Kodak Self Timer will make the exposure. It fits all cable releases.



THE SUNLIT WINDOW
Made with 1A Kodak Junior



PERCH ARE BITING TO-DAY

Made with a Premo

INSURING CORRECT DEVELOPMENT

SOME photographers are always interested in watching the image as it builds up, step by step, in a film that is developing in a tray. Those who have suitable darkrooms and have become expert in tray development may prefer the tray to the tank, but those who are not expert in tray development, and those who are more interested in the finished picture than in the development process, will learn from the following article the surest way of obtaining correctly developed negatives.

Tank development is simple and its results are certain, because they depend solely on conditions which anyone can control.

Tray development is not so simple and its results are not so certain because they are influenced by conditions which cannot readily be controlled.

The photographer who develops negatives in the tray must do so in a room that, when the dark-room lamp is extinguished, is totally dark. If any light, other than that coming from a safe dark-room lamp, enters the room while the

negatives are being handled, at any time before they are in the fixing bath, the negatives will be fogged. A slightly fogged negative cannot yield as good a print as one that is free from fog, while a badly fogged negative is worthless.

In order to be sure of obtaining correctly developed negatives by tray development it is necessary (1) always to use the same kind of developer, (2) always to have the developer at the same temperature, (3) to use a dark-room light that is always of the same brilliancy, and (4) to be able to accurately



ENTRANCE TO A VENETIAN PALACE
Made with 3A Folding Kodak, 1-25 sec.; stop 16

judge, from acquired experience, and by developing negatives often enough, when to stop development.

In tray development these four factors *must* be kept constant in order to insure correct development. The first two we have mentioned can easily be kept from varying, but it is practically impossible for the amateur photographer to keep the other two factors constant.

In the tank development of roll films no dark-room is needed. The entire process can be performed in full daylight. When Eastman Film Tank Developer Powders are used in an Eastman film tank there are but two factors to consider: These are (1) the temperature of the developer, and (2) the length of time to develop.

Since any amateur photogra-

pher, whether experienced or inexperienced in the development of negatives, and whether he develops negatives daily or only at rare intervals, can easily keep these two factors constant, he can, if he uses an Eastman film tank and carefully follows the instructions that are furnished with the tank, obtain correctly developed negatives every time.

Strange as it may seem, the tank can produce good printing negatives from incorrectly exposed films, provided the errors in exposure were not hopelessly excessive.

This statement may seem incredible to those who enjoy administering special treatments to negatives that do not behave just right while they are developing in the tray. In a future article we will discuss the effects of special treatments.



MUGS

Made with a No. 3 Brownie



THE FIRST WARM DAY
Made with No. 3 Folding Kodak



MONT BLANC IN JUNE
Made with No. 3 Folding Kodak



FOUNTAINS OF VERSAILLES AT SUNSET

Made with 34 Folding Kodak, 1-25 sec., f.8

"BLUR" AND ITS CAUSE

BLURRED negatives are generally understood to be those in which the definition is very poor; in other words, the image has been recorded on the negative with an indistinct or "fuzzy" outline.

Such negatives may be broadly divided into two groups, representing the two principal causes of this defect. One of them, and probably the one most often met with, is movement of the camera. This movement arises in the majority of instances from a sudden and jerky release of the shutter and will most likely be in one direction only; the evidence of this will be that horizontal lines in the negative are more blurred than vertical ones, or *vice versa*.

The other cause is incorrect focusing and this can be identified

by objects at a certain distance from the camera being rendered sharper than others at a different distance. Thus the foreground of the picture may be sharp while the principal object, 20 feet away, is unsharp, indicating that the camera was focused too close. On the other hand, both foreground and principal object may be unsharp, but objects beyond are sharp, showing that the camera was focused for too great a distance.



THE INSIDE CORK

VARIOUS chemical preparations are put up in small glass tubes in which a thin cork forms a partition that divides the tube into two compartments.

When a two-compartment tube has a cork stopper at each end the easiest way to get the chemicals out is, of course, to remove both end corks, but when a two-compartment tube is corked at one end only, with the other end closed like the bottom of a bottle, the easiest way to get the chemicals out will be to remove the end cork, pour out the chemicals that are in the first compartment and then,

with the point of a lead pencil, or with any other suitable implement, press down on one side of the cork that is inside the tube. This will turn the cork sidewise so that the chemicals in the second compartment can readily be poured out.

Obviously simple as this method is it may not suggest itself unless one accidentally tilts the cork in trying to draw it out.



YOUTHFUL PATRIOTISM

Made with a Kodak



A Big British Gun

THE BUSINESS OF WAR

..

OFFICIAL PHOTOGRAPHS FROM
BRITISH PICTORIAL SERVICE
WESTERN FRONT



A Tank Coming Out of Action



Unloading Bombs from a Pack Horse



A Royal Flying Corps Bombing Squadron



Fixing Sealing Ladders in a Trench, Preliminary to a Raid

THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

CHAPTER III—LIGHT AND SHADE

PHOTOGRAPHY is the art of *making representations of* natural objects by mechanical and chemical processes. These representations deal with differences of brightness, color being ignored, except in color photography, and the object of the photographic process is to translate, as accurately as possible, the degrees of brightness which occur in natural objects into corresponding degrees of brightness in a photographic print.

It is not possible to convey any impression in a photograph of the brightness of an object of even brightness; a piece of black velvet seen in bright sunlight is brighter than a piece of white paper in a dark room, so that it is impossible to speak of the brightness of paper or the blackness of velvet unless

there is some standard of comparison by which it can be measured. If black marks are made on the white paper and then photographed, the resulting print will reproduce the relative intensity of the black marks and of the white paper.

When a representation of a natural object is made on a flat surface, the form can be represented only by differences of brightness or color. Shape is only possible in sculpture. The painter uses differences of brightness and of color, while the black and white draftsman uses only the differences of brightness. Except in the special branch of color photography, photographs deal only with the reproduction of objects in their degrees of brightness.

The different degrees of brightness are spoken of by artists as



FIG. 1



FIG. 2

Diagrams Illustrating Multiplication of Tones in Pictures of an Object, From Two Tones, as in Fig. 1, to Six Tones, as in Fig. 5

"tones." If a piece of white paper on which black marks have been made is photographed the result will be a picture in two tones (Fig. 1). Between these extremes are other tones spoken of as half-tones. Figs. 2, 3 and 4 show the effects of additional tones. In Fig. 5 the six tones complete the representation of an object, from which it will be seen that form and substance are shown by degrees of brightness. In the mind the forms of natural objects are comprehended by the degrees of brightness that occur in them. It is the business of photography to reproduce these different degrees of brightness, which may vary from white to black.

Differences in brightness which occur in nature may be produced by differences in the illumination of the object. If a plaster cast is lighted directly from the front the outlines will be visible but there will be no variation in tone. It will have a flat, even appearance (Fig. 6). If the cast is lighted from one side shadows will be formed,

there will be variations in illumination, and in this way tones will be produced by shadow (Fig. 7).

In measuring the brightness of natural objects, the eye, unfortunately, cannot be used directly as a measuring instrument. By lifting a weight its approximate heaviness can be guessed at, but the eye cannot gauge brightness because the sensitiveness of the eye changes according to the brightness of the light. The eye

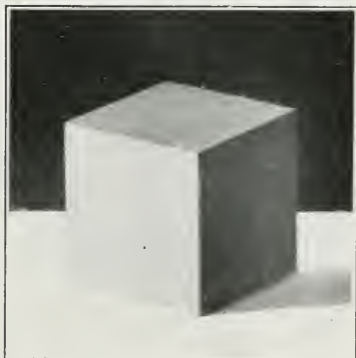


FIG. 5



FIG. 3



FIG. 4



FIG. 6



FIG. 7

Showing Differences in "Roundness" Resulting as Between a Flat Front Lighting of Statuary and a Side Lighting by which Tone Gradations are Produced

can, however, tell very accurately when two things are of the same brightness, and in order to make use of this a photometer is used. This is an instrument for measuring brightness by comparison with a known brightness. A convenient form of the instrument is shown in Fig. 8. In this the scene is viewed through a hole in a piece of white paper, and the white paper, which must be backed on metal so that it is opaque, is illuminated by a small lamp which can be moved so that its distance from the paper is varied.

In order to use the instrument it is held up to the eye so that the brightness to be measured can be seen through the hole in the paper, and then the lamp is moved until the brightness on the paper is the same as that seen through the hole, and then, since the brightness which the lamp throws on the paper at different distances is known, we shall be able to read off the brightness of the object which is measured.

The standard brightness is that given by one candle at a meter's distance, the meter being the

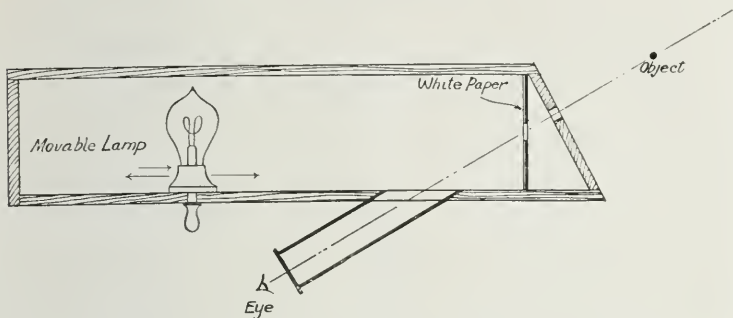


FIG. 8

Illustrating the Use of a Photometer in Determining Relative Brightness

French yard, equal to about thirty-nine inches, and this amount of light is called a candle meter. In ordinary outdoor scenes the sky will be about 10,000 to 30,000 candle-meters in brightness. A road will measure, perhaps, 1,000 candle-meters, and a shadow under a tree, perhaps, 100 candle-meters.

The brightness of an object depends not only upon the illumination falling upon it, but also upon the reflecting power of the object itself. Things differ very much in reflecting power. If a piece of white paper represents a reflecting power of 80%, a piece of gray paper may reflect only 44% of the light falling upon it, and so on down the scale, a piece of black paper reflecting only about 5%. The brightest thing known is white chalk, which reflects 90% of the light falling upon it; that is, of all the light falling on the white chalk 90% is reflected back. Snow does not reflect quite as much light as chalk. The ordinary red brick wall reflects only about 20%. Good black printers' ink reflects about 10%, and the blackest thing, black

velvet, will reflect about 1% or 2% of the light falling upon it.

Since in natural scenes both the reflecting power and the illumination vary, some parts of a landscape consisting of clouds in sunlight, and others of dark rocks in the shade, the range of contrast is often very considerable. For photographic purposes a scale, or contrast of 1 to 4, in which the brightest thing is only four times as bright as the darkest, is very low, and such a subject would be called flat; a contrast of 1 to 10 is a medium soft contrast; 1 to 20 a strong contrast; 1 to 40 very strong and 1 to 100 an extreme degree of contrast. All these degrees of contrast occur in subjects such as landscapes, street and seashore scenes.

In making a photograph we have to consider carefully the contrast of the subject. If the contrast is low there will be no difficulty in rendering it correctly by the photographic process, and the only difficulty is the danger that the contrast may be still more flattened in making the photograph,

and as a result we may get too flat a print. For full contrasts it is necessary not to over-expose and to give a full development since the contrast of the negative is increased during development. Subjects which are mostly sky and water, such as seascapes or beach scenes or snow pictures, always have low contrast, and the greatest defect of photographs made of such subjects is that they may be too flat. On the other hand, if the contrast of the subject is very great there is much difficulty in rendering it correctly in the photograph, and with great contrasts the exposure must be very exact, and especially must be sufficient. Any failure to give sufficient exposure will result in empty, black shadows, giving a very hard contrasty print. In the tropics, for instance, where the vertical sun makes very black shadows, the exposure must be almost as much as in the North, where the bright-

ness of the highlights is much less but where the shadows are better lighted; and under-exposure in the tropics, which is only too common in pictures taken by tourists, results in very harsh, unpleasant prints. Therefore, we must remember to consider the contrast of the subject which we are photographing, and in the case of flat subjects to keep our exposure short and our development full, while in the case of strong contrasts we must give plenty of exposure and not develop too long.



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SHAKE CHARMERS
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A SOLDIER IN ONE OF THE EMPIRE'S OUTPOSTS

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A BATTLE ROYAL
Made with 1A Kodak Junior

FOCUSING IN ENLARGING

WHEN making enlargements with the Kodak Enlarging Outfit it is easiest to focus with the lens wide open for then the image on the easel will appear as brilliantly illuminated as possible.

If the sharpest enlargement that the negative can yield is desired, a sheet of white paper, of about the same thickness as the bromide paper on which the enlargement is to be made, should be placed on the easel and the image focused on this. When the image appears sharp the bromide paper is substituted for the white paper on the easel and the exposure made with the lens stopped down to stop 16. For the sharpest obtainable results glossy or smooth bromide paper must be used as rough surface paper does not render sharp lines wholly sharp.

This method, of focusing as nearly as possible on the exact plane where the emulsion side of the bromide paper will lie and making the exposure with the lens stopped down is often used for making small enlargements, those, for instance, that are not larger than 5 x 7, but for larger pictures such sharp focusing is rarely employed unless the negative from which the enlargement is to be made is not sharp.

When enlargements are to be made from unsharp negatives (some of which make large pictures that are very attractive), a good way to focus is to place a sharp negative in the enlarging camera and focus this on the easel. After the focus has been obtained this negative is removed and the one from which the



KNIT ONE AND PURL ONE

Made with No. 3 Folding Kodak

picture is to be made is put in its place.

After having made many enlargements, of various sizes, with the Kodak Enlarging Outfit, the writer prefers to focus directly on the easel, without making any allowance for the thickness of the

bromide paper, and to make the exposure through the largest lens stop. The resulting pictures are not quite as sharp as those obtained by the method described above, but the effects are generally considered more pleasing, especially when the pictures are viewed,

as large pictures should be, at a distance of a few feet.

A picture that is framed and hung on the wall must, in order to be effective, convey its message briefly, without elaboration of detail. In an impressive picture, as in a well-told story, minute detail is sacrificed so that the attention will be centered on the point of interest.

Those who prefer the pictorial *suggestion* conveyed by blended lines and masses of light and shade to the pictorial *explanation* conveyed by minutely sharp lines and fine detail, can easily produce such effects from sharp as well as from unsharp negatives. By focusing with the Kodak Enlarging Outfit so the image will not be sharp on

the easel the sharpest lines in a negative can be rendered with blended edges. Any degree of diffusion of focus is attainable, from the slightly blended line to the extreme "fuzzytype."

In the June KODAKERY we explained how to locally control the printing of enlargements and thus increase or decrease the contrast between some of the tones. By the same method detail in any part of a picture can be suppressed by over-printing the dark tones or by under-printing the light tones.

The ability to do this makes it possible for the photographer to obtain almost any effect desired in enlarging with the Kodak Enlarging Outfit.



AN INDIAN RAILWAY STATION

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KODAK SERVICE

AS a user of a camera you wish to make good pictures. As manufacturers of cameras and photographic supplies it is for our interest to assist you in securing good pictures.

If you meet with problems in your photographic work that you cannot easily solve submit them to us. We have a staff of workers, each of whom is a specialist, who will take pleasure in assisting you.

If you fail to get satisfactory prints from your negatives send us both the negatives and the prints. Give as full data as possible. We would like to know the month, the time of day, the stop used and the exposure given when the negatives were made, also the name and grade of paper on which the prints were made.

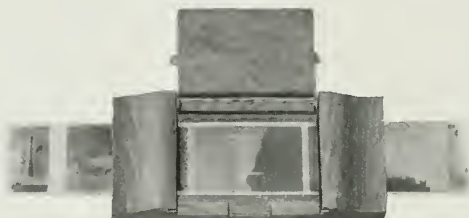
By examining the negatives we can tell whether exposure and development were correct, and by comparing the prints with the negatives we can tell whether the trouble lies in the printing or in the making of the negative. Both negatives and prints will be promptly returned.

The following extract, from one of many thousands of letters we have received, suggests what Kodak service, which is rendered *free of charge*, may mean to you.

"I also wish to take this opportunity of thanking you for your many suggestions and services of the past, which suggestions, I am glad to say, proved a big factor in my photo work and were always very accurate and to the point."

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Negatives*

By means of this new printing frame, prints are made direct from the film strip instead of from the small detached negatives which are often clumsy to adjust.

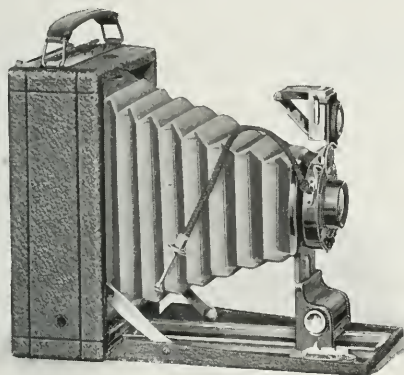
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Kodak Serial Printing Frame No. 2 for V.P.K. negatives
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The camera may be quickly loaded and unloaded in daylight with the Premo Film Pack, containing twelve exposures of Eastman N.C. Film.

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Eastman Film

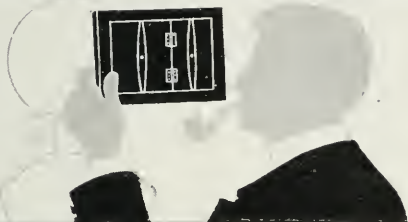
Even a Kodak cannot do its best work unless it is loaded with the film intended for it—the film that is absolutely dependable—Eastman film. All Eastman film is speed film.

If you have a camera in which the autographic feature is not incorporated, specify Eastman Film. If it isn't Eastman, it isn't Kodak film.

If you have an Autographic Kodak or an Autographic Brownie, specify Eastman Autographic Film. If it isn't Eastman, it isn't Autographic.

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KODAKERY

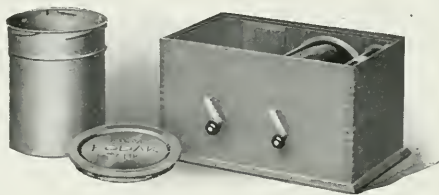
A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



SEPTEMBER 1918

CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.

All by Daylight



Nothing is left to chance with the

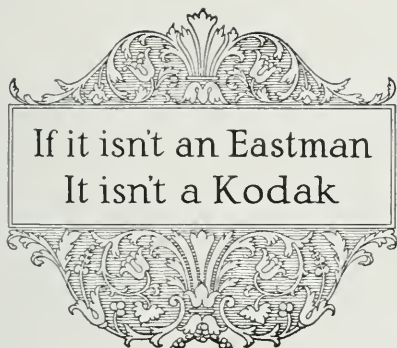
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No guess work—a definite time of development, at a definite temperature, and then fog-free negatives that as far as developing goes could not have been improved upon.

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If it isn't an Eastman
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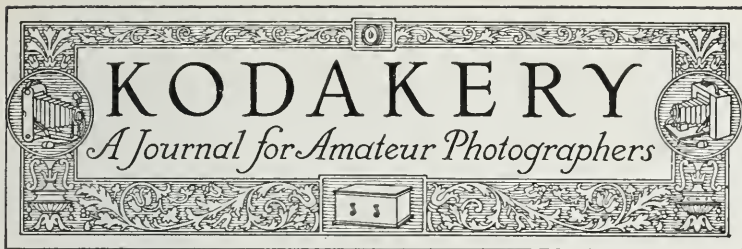


A PATRIOTIC TRIO

Enlarged from a 1:1

Kodak Negative

Made by T. H. Alford



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. V

SEPTEMBER, 1918

No. 11



MOVING UP TO THE FRONT

THE VOICE OF THE GUNS

Illustrated with British Official Photographs from British Pictorial Service

BY ALBERT CRANE WALLACE

THAT word "gun" once brought up a very simple picture in the mind. In the days when all guns were pretty much alike, very simple in form, the mental image was not at all intricate.

To-day the word gun covers a tremendous range of mechanical ingenuity, and stands out with a

terrible kind of picturesqueness. The artist who draws guns or the photographer who undertakes a portrait of them with a camera has by no means as easy a task as in the olden days.

Glance at the guns shown in the British official photographs which accompany these words. The big,



AN ANTI-AIRCRAFT SECTION FIRING AT GERMAN AEROPLANE

long range gun on lumbering tractor wheels says heavy work in unmistakable terms. Many miles of range are represented in its length and bulk.

The shorter gun, on the breech of which a helmeted soldier is working (page 6), has an ugly battering look betokening power in defense or attack at close range.

The anti-aircraft guns have much complicated mechanism as a result of their utility in following the sky fighters and the need to make quick changes of trajectory.

Sky fighters have their own guns, which are among the most ingenious of all the mechanisms devised by war, since they are so often operated by the man who is at the same time guiding a sky engine.

There is always something immensely impressive in a broadside from a battleship. In the case of

the picture on page 6 the photograph is from the "fighting top" at the very moment when the voice of four monsters roared in chorus. It is said very frequently that no one who has not been at the front can begin to understand the frightful voice of the guns when their roar is practically continuous. Yet men sleep through it!—when they are tired enough; just as they can sleep on a jolting gun carriage taking all the ruts of a badly broken country road.

Because guns are so often extremely conspicuous by their size, and because air scouts can so soon signal directions that will lead to their destruction, the need to develop some better means of concealment than the temporary concealment by night transit, camouflage came into vogue. Big guns are not only hidden, even in transit,



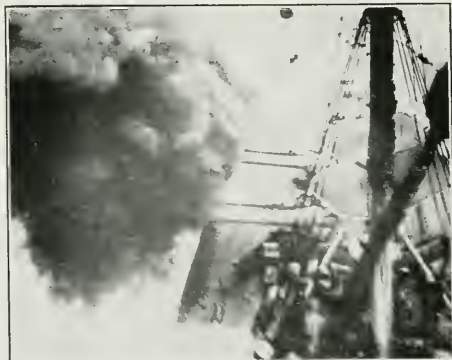
AIR SQUADRON MEN EXAMINING AIRCRAFT GUNS



SLEEPING ON A TRAVELING GUN CARRIAGE



TUNING UP A DEFENSE
GUN IN FLANDERS



BATTLESHIP FIRING AFTER-TURRET GUNS

by great coverings of tree branches and the like, but they are painted grotesquely to deceive the eyes in the sky. Note the barrel of the gun on page 3, splashed with various shades and shapes of gray, brown

and green. You may be sure that this barrel never by any chance glistens when it thrusts its nose forward to shoot. Paint has thus become a great factor in war, and painter and photographer work hand in hand in studying the creation and the detection of camouflage. As our own war students have learned at the R.A.F. Camps "reading" photographs made from the sky is a vital part of war work. Paint and theatrical device become the deceivers. The camera becomes the detective, and no Sherlock Holmes story ever could reach such gigantic drama.



IN THE BOIS DE BOULOGNE
Made with a Kodak; f.9; 1/2 sec. Film Pack



SHOWING HOW PORKY PHOTOGRAPHED HIMSELF

PORKY PHOTOGRAPHS HIMSELF BY FLASHLIGHT

BY HOWARD TAYLOR MIDDLETON

Illustrated by the Author

PORKY came waddling across the trail one evening just at sundown, looking for all the world like an animated pincushion.

He was not in the least bit of a hurry, and even when we approached him with the intention of taking some photographs he did

not deign to notice us, but kept plodding straight ahead at his slow bear-like amble.

As the light was too dim for a successful daylight picture, and we had no flash apparatus with us, we decided to wait until darkness fell, and then set up a baited camera for his quillship, trying for a nocturnal self-portrait.

The average small boy is no fonder of sweetmeats than a porcupine is of salt; in fact, Porky will go so very far as to destroy valuable property to obtain it. A case in point: an acquaintance of mine was camping on the shores of White Fish Lake in Michigan, and in his outfit was a canoe that had seen service in salt water. His vacation at an end, and expecting to come back the following year, he cached the canoe for the winter. Upon his return the next spring, all that remained of the craft was the metal work. The porcupines had devoured it for the salt it contained.

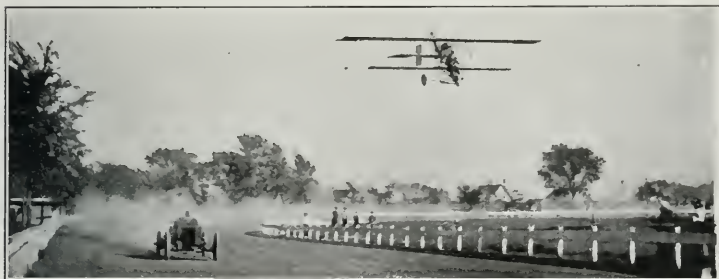
Being thus aware of Porky's great liking for salt, we acted accordingly. Soaking a piece of potato in brine, we fastened it at the

end of a thread—and our bait was ready.

Selecting a tree of the proper size to form an effective background, we drove a staple in the trunk at the height of the tripod, set up the long focus Premo and Eastman Flashlight Pistol (the latter being fastened to a stake beside the camera), and ran thread through staple to trigger of flash pistol. This left the saline tidbit dangling in most tempting fashion, and as the bark on many of the trees in the neighborhood showed markings made by Porky's sharp teeth, we felt confident of success.

After focusing on the bait by the aid of an electric lantern, and leaving the shutter wide open, we loaded the pistol with a weather-proof cartridge containing one-quarter ounce of fastest flashlight powder, threw a rubber cloth over the camera, and withdrew.

When we returned before dawn to close the shutter, the bait was gone. Sometime during the night Porky paid a visit to our impromptu studio and presented us with the portrait you see before you.



THE RACE

Made with a Graflex



BEFORE THE DESERTION OF VENICE

Made with a 3A Folding Kodak; f.16; 1-25 sec.

THE MATTER OF CONTRAST

A FLAT negative is one that lacks contrast. This lack of contrast may be due to too little difference in the strength of the light that is reflected from the various parts of the subject, it may be due to extreme over-exposure or, what is more frequently the case, to under-development.

A film is placed in the camera with the emulsion side facing the lens, so that all the light that reaches the film when the exposure is made must affect the silver that is nearest the surface of the emulsion before it can affect the silver that is more deeply embedded in the emulsion. The result is that the weakest light that acts on the silver penetrates but slightly below the surface, the somewhat brighter light penetrates deeper

and the brightest light that is reflected by the subject penetrates most deeply into the emulsion.

It is, therefore, evident that the outline drawing of the negative image must be recorded on the surface of the film and that it is this surface image which first becomes visible during development.

If development is stopped and the negative fixed as soon as the surface image can be plainly seen the finished negative will only contain a record of the light action that took place nearest the surface of the emulsion.

Such a negative will be under-developed and while it may contain considerable detail it will lack density, that is, the image will be too thin, and it will also lack sufficient contrast between the tones,



AN ALPINE HOME
Made with a Folding Kodak

because contrast in a negative is caused by differences in the amount of the silver that is blackened by the developer.

Since in an under-developed negative too little of the silver that the light acted on was developed there will be too little difference in the relative quantities of the silver reduced by the developer in the different parts of the negative.

It is just as possible to over-develop as to under-develop a negative and the stage at which development should be stopped, so that the finished negative will

most faithfully record the lights and shadows (the tones) of the subject is largely a matter of guesswork for the amateur who develops negatives in the tray, but in tank development guessing has been eliminated by developing for the length of time that countless experiments have proven correct for the temperature at which the developer is used.

By remembering what causes lack of contrast in negatives we will know how to avoid making negatives that are flat, but as we all make mistakes and are apt to

neglect to do some things we ought to do and are equally apt to do things we ought not to do, we should never throw away a negative because it looks weak and flat unless the negative image is so

ghostly thin that it will not print on any grade of paper.

In the following article we explain and illustrate how brilliant prints can often be obtained from flat negatives.



PRINTING FROM FLAT NEGATIVES

THE scale of contrast that any grade of photographic printing paper can render is practically a fixed quantity that neither the exposure nor the development of the print will alter to any marked extent.

A flat negative will make a flat print on any paper that records the same scale of contrast that the negative contains, and the only way we can obtain a brilliant picture from a negative that lacks

sufficient contrast is to make the print on a grade of paper that will record more contrast than the negative shows.

The amount of contrast desired between the various tones of a picture is, of course, a matter of taste, and as tastes differ we should know what grade of paper will give us the results we are seeking.

Probably the majority of amateur photographers prefer pictures that have strong highlights and



Print on Special Velox records about same degree of contrast that negative contains



Print on Regular Velox shows more contrast than negative

deep shadows, with plenty of detail in the middle tones. To make such pictures from negatives that are

snappy and brilliant, that is, with ample contrast between the tones, has always been easy, because



Print on Contrast Velox shows much more contrast than negative

printing papers that are suitable for such negatives have always been available, but it is only in recent years that it has been possible to obtain brilliant prints from flat negatives.

Our illustrations are faithful halftone reproductions from Velox prints that were made from the same negative. The print on Special Velox records about the same contrast that the negative shows, the print on Regular Velox records somewhat more contrast, and the one on Contrast Velox records much more contrast than the negative shows.

These illustrations show the difference in contrast that these three grades of Velox paper will render, and they also show, what is of very great importance to the photographer, that instead of increasing contrast by sacrificing needed detail in the lighter tones Velox paper has made prints from a flat negative in which the detail has been emphasized with the increase in contrast—note especially the rendering of the boy's clothing in all three pictures.

The paper did not put detail in the print that was not in the negative, for this cannot be done, but the paper did so separate the tones as to make this detail visible.

It must be remembered, however, that no one grade of paper is best adapted for all kinds of negatives. In this article we have shown that Contrast Velox, which is a contrasty paper, makes the most brilliant print from a flat negative, but in the May KODAKERY we demonstrated that a contrasty paper is not suitable for printing from a contrasty negative. There is only one thing that determines what grade of paper should be used for the result we are seeking, and that is, the character of the negative.

If we wish our prints to record as long a scale of tones as possible we should remember that Special Velox is best adapted for negatives of ample contrast, Regular Velox for negatives that are less contrasty and Contrast Velox for negatives that are so lacking in contrast as to be flat.



LE BOURG DE BATZ, FRANCE

Made with a Kodak; f.9; 1/2 sec.

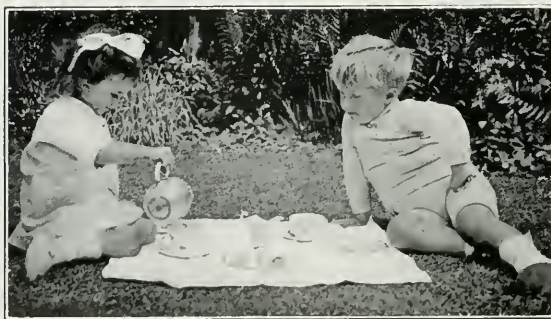


A NORMANDY ABBEY

Made with 3A Folding Kodak, f.16; 1-10 sec. April

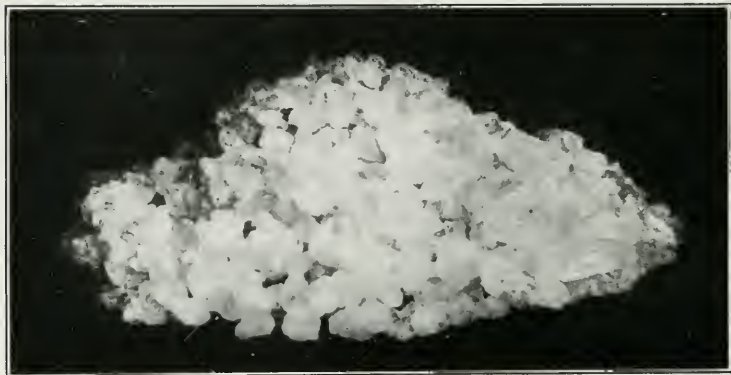
EYES

THROUGH
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F YOUTH





CRYSTALS OF HYPOSULPHITE OF SODA

THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

CHAPTER IV—THE LIGHT-SENSITIVE MATERIALS USED IN PHOTOGRAPHY

PHOTOGRAPHY depends upon the fact that the shiny, white metal silver when combined with certain other substances forms compounds which are sensitive to light and which are changed in their nature when they are exposed to light.

The first step in making these light-sensitive compounds is to dissolve the silver in nitric acid. When silver is put in nitric acid it is dissolved by it, and if the solution is dried up we get flat, plate-like crystals of silver nitrate. These crystals of silver nitrate dissolve in water quite easily, but if we add some salt solution to the silver nitrate solution, the silver combines with one of the components of the salt, called chlorine, and the silver chloride that is produced is

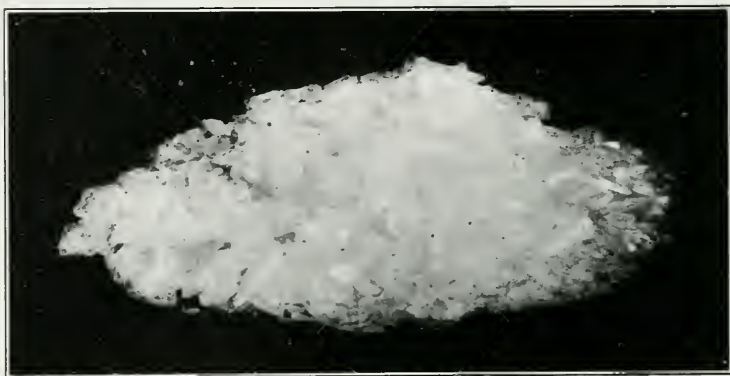
not soluble in water, so that if we add a solution of salt to the solution of silver nitrate the silver chloride will be precipitated as a sort of white mud in the solution.

If we spread some of the silver chloride on a sheet of paper and then expose it to the light, it will change color in the light and go brownish or purplish.

The fact that silver chloride is sensitive to light in this way has been known for very many years, and the first photographs were made by soaking paper in salt solution and then brushing silver nitrate over it so as to get a layer of silver chloride on the paper, meanwhile keeping the paper away from the light. A skeleton leaf was laid on the paper and covered with a sheet of glass to keep it flat, and



BRITTANY FISHING BOATS
Made with a Kodak; f.16; 1-25 sec.



CRYSTALS OF NITRATE OF SILVER

exposed to sunlight; and the image of the leaf printed out on the paper because the silver chloride went dark where it was not protected by the leaf.

If we try this experiment for ourselves, and use Solio paper, for instance, which is coated with silver chloride, it is, of course, quite easy to get a nice print, but we shall soon find what the people who first made photographs in this way found—that the print made will not keep because the white silver chloride which has not been printed is still capable of being affected by light and goes on darkening whenever it is looked at, until very soon the print is spoiled—so that the use of this method of making prints was delayed until some way could be found of fixing the prints, that is, of removing the silver chloride which had not been acted on by the light and so getting a permanent print which could be kept and examined.

If silver chloride were soluble in water, there would be no difficulty

in doing this, because all that would be necessary after making the print on the paper would be to wash it and the unchanged silver chloride would be washed out; but silver chloride is not soluble in water, and it was necessary to find something in which it was soluble. It took a long while to find this out. Finally, it was found that a chemical which we know as “hypo” and which is easily soluble in water will enable the water to dissolve the silver chloride, so that if we take some silver chloride paper such as Solio and make a print on it, and then put it in a solution of hypo, we can dissolve away the unchanged silver chloride and “fix” our print. It was really the discovery of the use of hypo for fixing which made photography practicable.

But if we put a sheet of Solio paper in our Kodak and try to take a photograph on the Solio paper, it will be a very long time before we get a good photograph, because although the Solio paper is sensi-

tive to light, it requires a good long exposure to bright light to get any image, and if photographers had to depend on printing out Solio paper to make their negatives, modern Kodakery would certainly not have existed.

At first, people tried to find materials which were more light sensitive than silver chloride, but soon they had the idea of supplementing the action of the light by the aid of chemicals.

They first got a very slight effect produced by exposure to light, and then by treating this image with chemicals they intensified it until

it was strong enough. This intensification by chemicals is called "development," and modern photography is accomplished by making, in the camera, an image which is so faint that it cannot be seen at all, and then developing up this image afterwards by chemical action.



Negatives that make brilliant prints on Regular Velox will make brilliant enlargements on Brilliant Velvet Bromide.



A SEA PLANE FLYER SENDING OUT CARRIER PIGEON FOR HELP
From a British Official Photograph



THE FRENCH RIVIERA

Made with 3-A Folding Kodak; f.22; 1-25 sec.

FOCUSING FAR DISTANT OBJECTS

THE rays of light that are reflected by an object are bent in passing through a photographic lens so that they will meet again at a certain distance behind the lens and form an image of the object.

If we use a focusing hand camera and set the focusing indicator at the twenty-five-foot mark on the focusing scale the lens will be the right distance from the film to form a sharp image of objects that are twenty-five feet from the

camera and also of objects that are somewhat nearer and somewhat farther than twenty-five feet from the camera.



AFTER THE SQUALL

Made with a Vest Pocket Kodak

In order to obtain the sharpest possible images of objects that are 100 feet distant the focus must be set for 100 feet and when it is so set objects that are considerably nearer and, when a compact folding focusing camera that makes pictures not larger than $3\frac{1}{4} \times 5\frac{1}{2}$ or 4×5 is used,



TERRACES OF THE VILLA D'ESTE, NEAR ROME

Made with 3A Folding Kodak

Upper picture with f.16; 1-10 sec. Lower picture f.22; 1-10 sec.

all objects that are infinitely farther than 100 feet from the camera will be in focus.

The marks on focusing scales show that for nearby subjects the lens must be placed farther from the film than for distant subjects, but there are no marks on the scales for distances greater than 100 feet. The reason for this is that the equivalent focal length of a lens determines the minimum distance from the film that the lens can be placed in order to

render sharp images. This distance is indicated by the 100-foot mark on focusing scales and if a lens is placed less than this distance from the film it cannot form a sharp image of any object whatsoever, no matter what its distance from the camera may be. Therefore, when you wish to make sharp pictures of extremely distant subjects with a folding Kodak, Premo or Brownie be sure to set the focusing indicator at the 100 foot mark on the scale.

GIVE YOUR TINFOIL TO THE RED CROSS

OUR country is at war—with autocracy, the foreign enemy that seeks to destroy self-government, and with *waste*, the domestic enemy that consumes part of our resources and seriously impairs our efficiency.

We have learned not to waste food and we should learn not to waste anything else that has value.

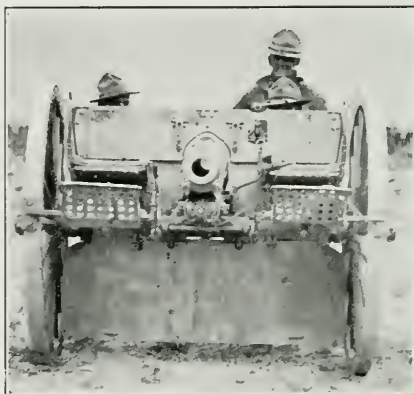
The tinfoil in which roll films, film packs and other goods are wrapped has a value and should not be wasted.

The quantity of tinfoil that any one of us throws away may be comparatively small, but the total quantity that all of us waste is enormous, as is evident from the fact that the Red Cross is receiving thousands of dollars for the tinfoil it is collecting and selling to the smelters.

By saving and giving to the Red Cross all the tinfoil you ordinarily throw away you will not make yourself one cent the poorer but will

be helping the Red Cross to minister unto those who are offering their lives in defense of the homes and the institutions that are dear to you.

Consult the Salvage Department of the Red Cross in your section and induce your friends to join you in giving the Red Cross all the tinfoil you and they can collect.



AN ARMORED FIELD GUN
Made with a Graflex



ST. BART'S, LONDON

Made with 3-A Folding Kodak, by J. A. Heir

SNAPSHOTS FOR OUR SOLDIERS

A PIECE of paper covered with black and white splotches—nothing more. But suppose those splotches have been painted by sunlight shining through a camera lens, and form a picture of a homestead, a familiar street, or a mother's snowy hair, and face lined with the eloquent handwriting of the years—what would a soldier rather have from home than such souvenirs?

A snapshot of the house and barn; of the family sitting on the front steps; of father spading up the garden; of the old horse rubbing his nose along the pasture gate; of the dog wagging expectancy at the kitchen door; of the baby sprawling in the sand-pile, or the older children squinting at the camera with the sun in their eyes—

these are the scraps of paper which defy time and distance. They assure men amid scenes of violence and death that the peaceful, sweet life they have left behind in order to defend still exists.

Now that the sweaters, stockings, wristlets, helmets, jam, tobacco, chocolate—and other creature comforts have been sent off, and brains are being cudgelled for something else to send the boys at the front, do not disdain the humble snapshot—the amateur photograph that anyone can take by pressing a spring; the little peep of home faces and home scenes that can be sent far overseas and taken out of a pocket at odd moments—who knows at how odd moments?—for a renewal of faith and hope and memories of home.—*Boston Globe*.

"ON EVERY FRONT IN EUROPE"

A SINGLE movement of the finger releases the camera shutter. In a fraction of a second the film records the details of a scene which words could not describe.

The camera is telling the story of the world war—telling it pictorially—the only way many of its ever-changing incidents can be made known to us.

To the war correspondent the camera is more important than his note book. Man's memory is fallible, his most faithful interpretations are apt to be influenced by his feelings. The camera records what it sees. Its records are impartial and accurate.

It is probably no exaggeration

to say that all kinds and makes of cameras have been used along the European battle fronts. Donald Thompson, the war correspondent of *Leslie's Weekly*, went to the front with a Graflex. Concerning this camera he writes, in the introduction to his book "Donald Thompson in Russia:" "I have used Graflex cameras, made by the Eastman Company, on every front in Europe and have never lost a picture through the fault of the camera. I have seen other people use German cameras and fail to equal the results that I have obtained with the American-made goods. I also use American lenses. I have never used a German lens and never will."

KODAK SERVICE

AS a user of a camera you wish to make good pictures. As manufacturers of cameras and photographic supplies it is for our interest to assist you in securing good pictures.

If you meet with problems in your photographic work that you cannot easily solve submit them to us. We have a staff of workers, each of whom is a specialist, who will take pleasure in assisting you.

If you fail to get satisfactory prints from your negatives send us both the negatives and the prints. Give as full data as possible. We would like to know the month, the time of day, the stop used and the exposure given when the negatives were made, also the name and grade of paper on which the prints were made.

By examining the negatives we can tell whether exposure and development were correct, and by comparing the prints with the negatives we can tell whether the trouble lies in the printing or in the making of the negative. Both negatives and prints will be promptly returned.

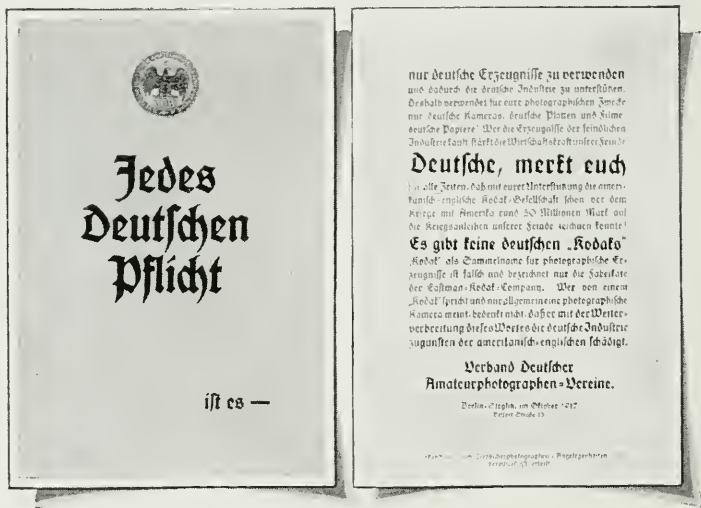
The following extract, from one of many thousands of letters we have received, suggests what Kodak service, which is rendered *free of charge*, may mean to you.

"I also wish to take this opportunity of thanking you for your many suggestions and services of the past, which suggestions, I am glad to say, proved a big factor in my photo work and were always very accurate and to the point."

• ADDRESS ALL COMMUNICATIONS

"KODAKERY," CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

To the People of Germany they said:



THE illustration shows a pamphlet signed by the Association of German Amateur Photographers' Societies and dated Berlin, October, 1917. It is reproduced from a photographic copy lately received in this country. The translation in full is given on opposite page.

—If it isn't an Eastman it isn't a Kodak!

A translation of the circular in full is as follows:

"It is the duty of every German to use only German products and to patronize thereby German industry. Therefore, use for photographic purposes only German cameras, German Dry Plates and German papers. Whoever purchases the products of enemy industries strengthens the economic power of our enemies.

"Germans! Remember for all times to come that with the aid of your patronage the American-English Kodak Co. subscribed before the war with the United States, the round sum of 50,000,000 marks of war loans of our enemies!

"There are no German 'Kodaks' ('Kodak' as a collective noun for photographic products is misleading and indicates only the products of the Eastman Kodak Co.) Whoever speaks of a 'Kodak' and means thereby only a photographic camera, does not bear in mind that with the spreading of this word, he does harm to the German industry in favor of the American-English."

—If it isn't an Eastman it isn't a Kodak!

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

THREE THOUSAND DOLLARS

CASH AWARDS IN THE 1918

Kodak Advertising Competition

FOR PICTURES SUITABLE
AS ILLUSTRATIONS IN
KODAK ADVERTISING

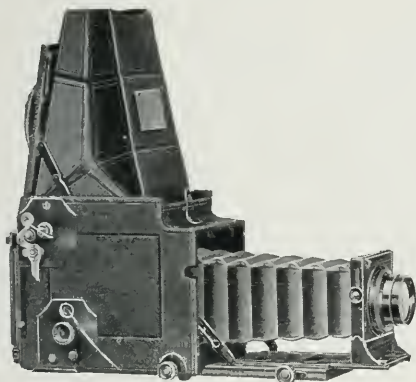
And a Thousand Dollars
of this sum is to be used for
awards to Amateurs,
exclusively.

THERE IS AN OPPORTUNITY FOR YOU

*Ask your dealer for circular giving full details,
or send for copy.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

Contest closes Oct. 20, 1918.



*Hunt
with
a*

Revolving Back Auto Graflex

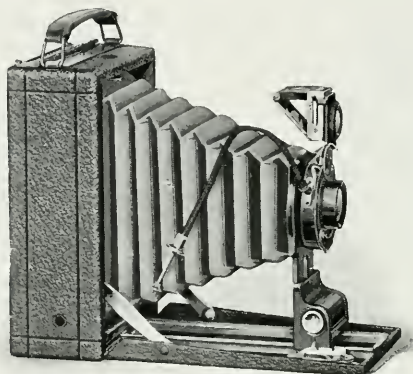
BIG game, in action, "close-ups" of birds and nests, full size reproductions of small insects, flowers or mineral specimens—these are only a few of the interesting picture possibilities that this camera can realize to the full.

When the nature or location of the subject will not permit you to approach closely, a *large picture image* can be obtained by the use of a long focus lens—and you can *watch* the full negative size image, adjusting focus and composition to the instant the picture is made.



*Ask for the Graflex Book free
at your dealer's or by mail.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



PREMOETTE SENIOR

An exceptionally light and compact camera for the size of picture it makes.

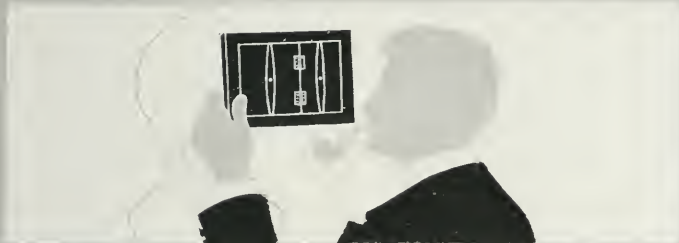
The Premoette Senior is made in three sizes, $2\frac{1}{2} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 5\frac{1}{2}$, and is equipped with Rapid Rectilinear, or Kodak Anastigmat lens $f.7.7$, mounted in the Kodak Ball Bearing Shutter.

The camera may be quickly loaded and unloaded in daylight with the Premo Film Pack, containing twelve exposures of Eastman N. C. Film.

Attractively finished and exceptionally simple in operation, the Premoette Senior will meet the requirements of anyone desiring a reliable camera at moderate cost.

*Ask for the 48-page Premo Catalogue
free at your dealer's or by mail.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



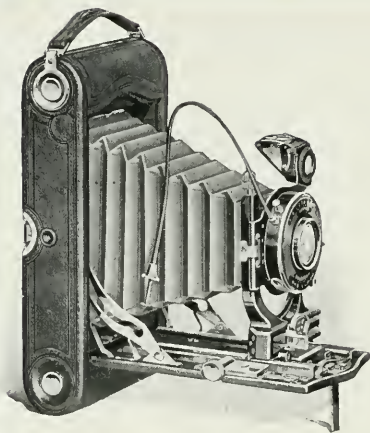
Prints by Gaslight

VELOX

The photographic paper that helps
you make good prints.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



3A Autographic Kodak *Special*

PICTURES, size of a post card—anastigmat lens equipment and shutter of the highest grade—Kodak Range Finder that finds the focus for you—autographic attachment—rising front—aluminum construction—rich finish with genuine Persian Morocco, black bellows of selected leather and highly nickeled parts.

These are just a few of the reasons why the 3A Autographic Kodak *Special* is the camera de luxe of the Kodak line.

PRICES

3A Autographic Kodak <i>Special</i> , Kodak Anastigmat lens, <i>f</i> .6.3, and Optimo shutter	\$60.00
Ditto, with Bausch & Lomb Kodak Anastigmat lens, <i>f</i> .6.3	81.00
Ditto, with Bausch & Lomb Tessar Series IIb Anastigmat lens, <i>f</i> .6.3	98.50

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

Ask your dealer for a copy of the 1918 Kodak Catalogue

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



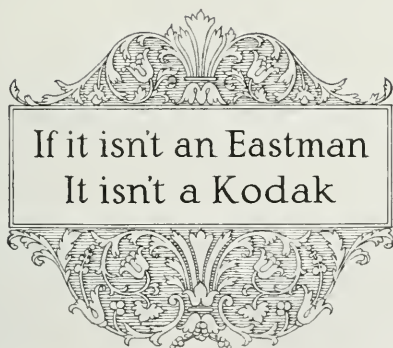
OCTOBER 1918

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TORONTO, CANADA.

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If it isn't an Eastman
It isn't a Kodak



A SERBIAN OFFICER'S
"VEST POCKET"

Made with 3A Kodak by Merle LaVoy



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. V

OCTOBER, 1918

No. 12



OLD ROMAN BRIDGE AT VODINA, NEAR SALONIKA

A CAMERA ARTIST IN THE BALKANS

BY ALBERT CRANE WALLACE

With Kodak Illustrations by Merle LaVoy

THAT camera side of the war which has brought us so many pictures of the trenches, of battle, of devastation, has become familiar so far as pictures may make it familiar. We guess in a vague way of the circumstances under which the pictures were made. We know that the airman

makes negatives from the sky and that the "groundman" photographer has been busy performing a vitally useful service in developing and printing. Further, most of us are familiar with R. A. F. uniforms and have learnt something of the work from friends in the service.

With so much military photo-



A QUAIN'T MACEDONIAN VILLAGE

graphic work to do, the camera man has had few opportunities to think of art—of beauty. Yet much beautiful work has been done.

This fact was brought home to me when I looked at the remarkably clever work of La Voy, some of whose pictures have appeared in KODAKERY, and of whose charming negatives a fresh group is printed with this article. Mr. La Voy's pictures show not only a gift for making any subject pictorially interesting, but they illustrate in this particular case a happy faculty for finding romantic beauty even in war-torn countries.

Exceptional success in any artistic way rests not only in knowing what is pictorially interesting, and in choosing the right point of view to insure the simple and effective composition that constitutes a picture, but in using the camera itself so as to secure those qualities of

negative that will give best expression to the subject selected.

Take the case of the old Roman bridge at Vodina. How charmingly this picture is composed! And how brilliantly, yet without the slightest hardness or "chalkiness" Mr. La Voy has interpreted the forms and the splatterings of color in this scene!

In the way of dramatic composition, the door and the line of women and children approaching the recording officer to receive their allotments of Red Cross food is really noteworthy. The companion picture, showing the line of people, with the peaks of background tents, is a peculiarly interesting human document.

The "Macedonian Village" and the Vodina street are examples of naturalistic composition worthy of an able painter.

In his frosty scene on the Serbian front, Mr. La Voy has a differ-



AMERICAN RED CROSS FEEDING REFUGEES AT VODINA

ent front. This surely looks different from pictures we have been in the habit of studying on the western front.

There is quite a contrast, and something more familiar in the pic-

ture of General Sarraill awarding honors to Balkan officers, and we are glad to get the glimpse of the husky young officer with the Vest Pocket Kodak—a little weapon of wonderful efficiency!



REFUGEES IN LINE FOR RED CROSS FOOD



A PICTURESQUE SECTION OF THE SERBIAN FRONT IN WINTER

It is to be noted that we have heard vastly less of the intensely dramatic situation in the East of the war, than in the West of it. But no corner of the great conflict is so remote as to have escaped

the Kodak. The war has taught us a great deal of geography and has, at the same time, given an added zest to studies of the world's peoples that will be materially aided by the camera.



A ROMANTIC STREET IN THE TOWN OF VODINA



GENERAL SARRAIL, AWARDING HONORS TO BALKAN OFFICERS



Made with 3A Kodak, by Edward F. Maddox; f.8

RECORDING THE LIGHTNING'S FLASH

To appreciate the awe-inspiring beauty of the lightning's flash we must view it on a dark night, for it is only during the hours of darkness that the fainter lines of light that branch from the main stream can be distinctly seen.

Drawings of lightning, especially those made in the days before photography, usually represent the flash as a zigzag or as a forked streak of light, but neither of these forms occur as frequently as the single sinuous line or the fiery "river" that is fed by tributary streams. The lines of light are really formed by leaping sparks moving so quickly that the impression of a continuous line is carried on the retina of the eye. In the same way any spot of light carried before an exposed film will produce the effect of lines.

So rapidly does lightning travel that the human eye transmits little

more than a general impression of what it looks like to the brain, but the camera lens transmits an accurate, detailed image of the flash to the film, which permanently records it.

To make a snapshot of lightning is possible, but it is not practical, for none of us can act as quick as lightning and if we made a snapshot exposure the instant the flash appeared we could only obtain a partial record, as the first part of the flash that became visible would have vanished before we had opened the shutter.

The most satisfactory way is to place the camera on a solid support, open the shutter for a time exposure, await the appearance of the lightning and then close the shutter as soon as the flash has occurred.

This method applies, of course, to night work only as during the hours of daylight the film would be



Made with 3A Special Kodak, by Lloyd Parsons; stop 16

hopelessly over-exposed if the shutter was left open waiting for the lightning.

It was by this method that the accompanying pictures were made. The fact that each negative was exposed during the entire duration of the flash and equally good results were obtained with stops $f.7.7$, $f.8$ and $f.16$ is due to the latitude of Eastman film.

Pictures of lightning can be made with any kind of camera. With fixed-focus cameras that have no stops marked 8 or 16 the largest stop, or the one through



*Made with 1A Autographic Kodak Jr.
by Ignazio Cicero, $f.7.7$*



Made with 3A Special Kodak, by Lloyd Parsons; stop 16

which snapshots are ordinarily made, should be used.

The sheet lightning that illuminates a large area of the sky does not make an attractive picture unless it is accompanied by a vivid flash, such as is shown in the pictures on page 9. It is the narrow

lines of light that plunge, usually downward, that produce the spectacular effects which are always most interesting when these intensely brilliant streamers make silhouettes of landscape objects with which we are familiar, as in the picture above.



THE LENS STOP

PHOTOGRAPHIC lenses are fitted with stops of various sizes. These stops, which are also known as diaphragms, are used for regulating the amount of light that passes through the lens. A large stop will allow more light to pass through the lens than a small one, just as a large window allows more light to enter a room than a small window does.

The exposure needed for obtaining a correctly timed negative de-

pends on the intensity or brilliancy of the light that reaches the film, and since the size of the stop affects the volume of the light that passes through the lens it is important for the photographer to know the relative exposure values of the stops with which his lens is fitted.

There are two systems of marking lens stops: The U. S. (Uniform System) is ordinarily used on rectilinear lenses, and its markings are



SURF ON THE COAST OF OLD BRITTANY
Film Pack Film Negative; f. 5.7; 1-50 sec. exposure

based on the relation between the *area* of the stop and the focal length of the lens, while the *f*. system is in practically universal use on anastigmat lenses, and its markings are based on the relation between the *diameter* of the stop opening and the focal length of the lens.

Different numerals are used for expressing the relative values of the stops in these two systems, but in both systems all stops that bear a higher number than U. S. 4 or *f*.8 admit just half as much light as the next lower numbered stop. This means that for all higher numbered stops the exposure must be doubled when the stop indicator is moved from any one stop number to the next higher number and

must be halved when the indicator is moved from any stop number to the next lower number. To illustrate: Should the correct exposure be $1/25$ of a second through stop 16 it would be $1/50$ of a second through stop U.S.8 or *f*.11, and $1/12$ of a second through stop U.S.32 or *f*.22.

The numerals used for marking the stops in the U.S. and *f*. systems are listed in the first two columns of the accompanying table.

In the third column the values of these stops are compared with the exposure value of *f*.8 (U.S.4) which is the largest stop on rectilinear lenses.

The last column translates these



A SNUG HARBOR
Made with No. 1 Kodak Jr.



RIVER SPORT
Made with a Graflex

values into actual exposure fractions, taking $1/25$ of a second through stop 16 (the usual exposure for ordinary landscape subjects in sunlight) as a standard. It is the figures in the last column that many of our readers have asked for.

Lens stops that are marked 4.5, 5.6, 6.3 and 7.7 are only used on anastigmats.

No photographic shutter has all the speed markings listed in the last column; but the correct exposure can always be given by using the stop that the available shutter speed calls for.

COMPARATIVE STOP VALUES

<i>f.</i>	U. S.	Exposure Value	Comparative Exposures
4.5	1.25	.3	$1/330$
5.6	2.	.5	$1/200$
6.3	2.5	.6	$1/160$
7.7	3.7	.9	$1/110$
8	4	1	$1/100$
11	8	2	$1/50$
16	16	4	$1/25$
22	32	8	$1/12$
32	64	16	$1/6$
45	128	32	$1/3$

<i>f.</i>	U. S.	Exposure Value	Comparative Exposures
4.5	1.25	.3	$1/330$
5.6	2.	.5	$1/200$
6.3	2.5	.6	$1/160$
7.7	3.7	.9	$1/110$
8	4	1	$1/100$
11	8	2	$1/50$
16	16	4	$1/25$
22	32	8	$1/12$
32	64	16	$1/6$
45	128	32	$1/3$



With an Autographic Kodak you can record the date, the stop and the exposure on Autographic Film.



THE PYRAMIDS OF EGYPT THROUGH THE PALMS

Made with 3-A Folding Kodak

A UNIVERSAL DEVELOPER

EVER since development papers have come into universal use there has been an insistent demand for a universal developer, that is, a developer that would produce satisfactory results when used for the development of both negatives and prints.

The standard developer for prints is Elon-Hydrochinon, commonly called Elon-Hydro, but neither Elon-Hydro nor Metol-Hydro (known as M.Q.) are considered as satisfactory as some other developers for films and plates.

A series of tests has been made, for the purpose of finding a developer that would yield prints equal in quality to those developed with Elon-Hydro and also make negatives that would have a better printing quality than had yet been

obtained from any developer that was capable of making high-grade prints. A comparison of these tests showed that the Eastman Special Developer would produce these results.

A careful comparison of prints, made from the same negative, showed that no difference could be detected in the prints developed with Elon-Hydro and those developed with the Eastman Special Developer. It was found that the best results were obtained when both these developers were used at a temperature of 70 degrees, but that when the temperature was lowered to 60 degrees (thus necessitating longer development) the Eastman Special Developer was least liable to stain the prints. It has also been noted that those whose fingers are irritated by Elon-

Hydro rarely experience this inconvenience when using the Eastman Special Developer, which does not stain the finger nails.

Negatives of the same subject, that were developed by the tray method, some with pyro and others with the Eastman Special Developer, were also compared and it was found that while the pyro developed negatives had slightly the best printing quality, those developed with the Eastman Special Developer possessed a printing quality that was superior to any that had yet been obtained from any other developer that was at the same time entirely suitable for use with paper.

It should be borne in mind, however, that neither the Eastman Special Developer, nor any other developer that is suitable for making prints, is recommended for developing negatives in the tank.

Tank development is based on the action of pyro, of which the Eastman Tank Powders are composed.

These facts lead us to the following conclusions: The Eastman Special Developer is the nearest approach to a universal developer we know of. It is perfectly adapted for developing prints and it will also produce splendid results when used for developing negatives in the tray.

The photographer who prefers to use but one kind of developer and the photographer who wishes to always have on hand a developer that is adapted for so wide a range of work as the development of negatives, lantern slides, Velox, bromide and other papers, will find the Eastman Special Developer splendidly suited to his needs. It is put up both in glass tubes and in paper packets and can be obtained from all Kodak dealers.



PUPPY LUCK

Made with No. 1 Kodak Jr.



Airman Handing Photographic Plates to a "Groundman"



An Air Bomb



Bombing Machine and Fighting Scout

SIDE OF WAR

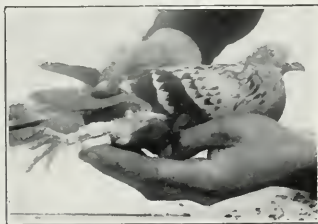
SHOWN IN BRITISH
OFFICIAL PHOTOGRAPHS
FROM BRITISH
PICTORIAL SERVICE



A British Dirigible



Anti-Aircraft Men



A Carrier Pigeon



Captured German Plane



ON THE COAST OF FRANCE

Made with 3A Folding Kodak

CLOUDS AND LANDSCAPE WITH A SNAPSHOT EXPOSURE

A PROBLEM that often confronts the photographer is how to make a snapshot of a landscape, with a compact film camera, that will show detail in nearby objects and also show the clouds in the sky.

In order to record both clouds and nearby landscape detail it is necessary to use a filter, but a color filter that will cut out enough of the blue in white light to make the blue sky photograph darker than white clouds increases exposure at least ten times. This means, if the correct exposure for the subject should be $1/25$ of a second through stop 16 when no filter is used, that a ten times filter would make it necessary to give a $\frac{1}{2}$ second exposure through stop 16, and since no one can depend on being able to hold

a camera perfectly steady for $\frac{1}{2}$ a second the use of stop 16 with a ten times filter puts snapshot work out of the question.

Suppose we try to get around this difficulty by using stop 4 on a rectilinear lens, or stop $f/8$ on an anastigmat, either of which stops will pass four times as much light as stop 16. The exposure without a filter will then be $1/100$ of a second, and with a ten times filter it will be $1/10$ of a second. If there is a $1/10$ second speed mark on our shutter, and we can manage to hold the camera steady while a $1/10$ second exposure is being made, we will have solved the problem, but the large stop used will confront us with another difficulty—that of depth of focus.

Depth of focus is the distance

between the nearest and farthest objects that the lens will focus sharply, and this distance decreases as the size of the stop is increased and increases as the size of the stop is decreased.

Stop 4 (*f.8*) is a large stop, and because it gives much less depth of focus than stop 16 it is rarely used for landscape work, unless the subject is an extremely distant landscape with nothing of interest in the foreground, or unless the foreground of the scene is to be trimmed off the print so that the attention will be concentrated on the more distant objects.

Stop 16 is usually recommended for ordinary landscape work when both the foreground and the distance are to be sharply rendered, and as we have shown that we cannot use a ten times filter with stop 16 unless we make a time exposure it is evident that if we wish to get the clouds, and the foreground also, with a snapshot exposure, we need a filter that will subdue the light from the sky without subduing the light that is reflected from the landscape.

It is just this selective work—the cutting out of more of the light reflected from the sky than from the landscape—that the Kodak Sky Filter was designed to perform. With this filter snapshots can be made that will record detail in nearby as well as far distant objects and at the same time suitably record white clouds in a blue sky. The upper half of the filter is colored yellow so that it subdues the light from the sky while the lower half is not colored so that the light reflected from the landscape is not subdued.

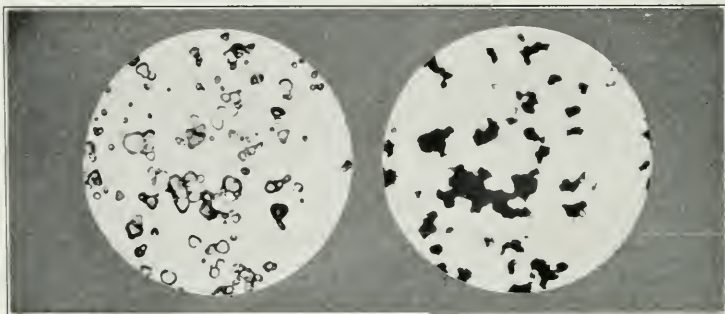
The Kodak Sky Filter, used with a stop of any size, only requires doubling the minimum exposure that will suitably record foreground detail, and if $1/25$ of a second happens to be, as it often is in practice, more than the minimum permissible exposure, splendid cloud effects with ample landscape detail can be recorded when a $1/25$ second snapshot is made with the Kodak Sky Filter.

The Kodak Sky Filter is furnished by Kodak dealers for all the models of Kodaks, Premos and Brownies. It is so useful and gives such satisfactory results that the writer never goes afield without it, because it puts the clouds that are above the landscape into the picture, with a snapshot exposure.



A SELF-CONDUCTED TOUR

Made with a Kodak



The photographs above, taken through a very powerful microscope, show crystals of silver bromide before development (on the left) and (on the right) some crystals after they have been changed into metallic silver by development. The crystals before development are transparent except where they are seen sideways or where their edges appear darker. After development the clear yellow silver bromide is turned into a black coke-like mass of silver in exactly the same position as the crystal from which it was formed.

THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

CHAPTER V—THE PHOTOGRAPHIC EMULSION

IN the last chapter of this series we saw that in order to take photographs in the short time for which a Kodak shutter allows the light to shine upon the film it is necessary that only a small amount of the action upon the film should be produced by the light itself, and that then, after this small amount of action has been produced by the exposure, the image should be developed by treatment of the exposed film with a chemical solution which is called the "developer."

The sensitive surface with which the films are coated is called the "emulsion." This emulsion consists of a suspension of silver bromide in a solution of gelatine, and it is made in the following way: Some gelatine, like that used for cooking, is soaked in water, and

then when it is swollen up it is dissolved by putting it in warm water and gently warming and shaking until it is all dissolved. Then there is added to this the right quantity of bromide. Bromide is a substance very much like common salt, but instead of containing chlorine, which salt contains, it contains a near relative of chlorine called "bromine." The bromide dissolves in the gelatine solution just as salt would, and is stirred up to get it evenly distributed. Meanwhile, some silver nitrate has been weighed out so that the right amount is taken to act with the amount of bromide chosen and is dissolved in water, in which it dissolves very easily. This silver nitrate solution is then added slowly to the bromide dissolved in



Photograph of two flasks containing silver bromide in solution. The flask on the left shows that silver bromide without gelatine settles to the bottom of the solution. The one on the right shows the silver bromide held evenly in suspension by gelatine.

the gelatine, and produces at once a precipitate or a kind of yellowish-white mud of silver bromide. This silver bromide is sensitive to light so that before adding the silver nitrate to the bromide and gelatine all the white lights are turned out and the silver is added by the light of a photographic red lamp.

If there were no gelatine with the bromide solution the silver bromide formed would settle down to the bottom of the solution and the emulsion would be of no use, but the gelatine prevents this and keeps the silver bromide suspended evenly so that as the silver is added a little at a time, with the solution being stirred meanwhile, the gelatine becomes full of the smoothly, evenly precipitated silver bromide

distributed through the solution.

If this emulsion of silver bromide in gelatine is coated on the film and then cooled, the gelatine will set to a jelly, still containing the silver bromide suspended in it, and then when this layer is dried, we get the smooth yellowish coating, which is familiar to those of us who have looked at an undeveloped film in the light.

If we look at the silver bromide film through a very high power microscope, we shall find that the silver bromide is distributed throughout it in the form of tiny crystals. When these crystals are exposed to light, no visible change takes place, but there must be some change because when a crystal of silver bromide, which has been exposed to



WHEN THE ROUMANIAN TROOPS CROSSED THE DANUBE

Made with a Kodak

light, is put into a developer, the developer takes the bromine away from the silver and leaves instead of the crystal what looks under a microscope like a tiny mass of coke, which is, really, the metallic silver itself freed from the presence of the bromine.

It may seem strange that silver, which we always think of as a bright, shiny metal should look black, but when it is divided up in this irregular way, it looks black, although it is the same thing as the shiny metal we are familiar with, just as a black lump of coke is the same thing as the bright, gleaming diamond.

If the silver bromide has not been exposed to light, then the de-

veloper has no power to take away the bromine from the silver and leave the black silver behind, so that we see a developer is a chemical that has the power to take away the bromine from the silver in a grain of silver bromide which has been exposed to light but will not affect one which has not been exposed to light.

Wherever, then, the light in the Kodak acts upon the silver bromide crystals in the emulsion, the developer turns them into black grains of silver and we get an image, and where the light has not acted the developer has no action and no image is produced. The chemical part played by a developer, therefore, is the freeing of the



HAY TIME

Made with a 2C Brownie

metallic silver from the bromine associated with it.

Now this liberation of metals from their compounds is the most important chemical process in the history of the human race.

The great thing which has distinguished man from the other animals has been his ability to make and use tools and weapons, and man has progressed step by step from the earliest days when he used a flint fastened to a stick, to the present time, when he employs the marvellous machinery of modern civilization; but the greatest step in all that progress came when men found out how to get metals to use in the place of stone. All the earliest weapons were made of stone, and then men found a way of getting tin from its ores, and found that when this tin was combined with copper, which they found in the ground, they could get bronze,

and for a long time all the weapons and tools were made of bronze, and then came the greatest discovery of all—they found that by taking iron ore and heating it with charcoal they could get the metal iron, which made such beautiful tools and weapons; and from the time that men found out how to get iron, they ceased to be savages and began to be civilized.

Iron is got from the ore by heating it with charcoal or coke, which takes away the other components of the ore and leaves the metallic iron free. Metals can be got out of their components in different ways. Quicksilver, for instance, can be got by merely heating its oxide. If the red oxide of quicksilver be heated the quicksilver will boil off, and can be collected quite pure at once. Silver is rather easy to get, and, indeed, if we take a solution of silver nitrate and add some iron

sulphate to it the metallic silver will be thrown out as a black sludge.

The developers that we use in photography play the same part

for the silver that the charcoal does for the iron; they take away the bromine from the silver bromide and leave the metallic silver behind.



DEVASTATED BELGIUM AND FRANCE

HAVE you any photographs, that were made before the war, of the parts of Belgium and France that are or that have been occupied by the German armies?

By sending them to the War Department at Washington you will be rendering a service to the Allies.

Kindly bring this to the attention of your friends and to the attention of all people you can get in touch with that have traveled in Europe.

Remember it is not pictures of the war that are wanted, but it is pictures that show scenes in the cities, towns and country as they were before the Germans entered them, that the War Department is desirous of obtaining.

Send all such pictures as you possess or can obtain, with data telling when and where they were made and what they represent, to Mr. A. B. COXE, Lt.-Col. General Staff, 1156 Fifteenth St., N. W., Washington, D. C.



BY WAY OF AUGUST CONTRAST—ON THE SWISS MOUNTAINS

Made with 3A Folding Kodak



CHURCH OF ST. MATHIAS AT MORLAIX, FRANCE
Made with 3A Folding Kodak, f.22; 1-10 sec.

THE EXPOSURE TO GIVE BY MOONLIGHT

PHOTOGRAPHERS often inquire regarding the exposure to give when making pictures by moonlight.

The intensity of full moonlight, as compared with the intensity of bright sunlight, has been measured by various investigators and the conclusions reached are, that the brightness of sunlight is about 500,000 times greater than the brightness of the full moon.

As moonlight is more yellowish than sunlight it is well to consider that its photographic value is only 1/600,000 that of sunlight. The half moon gives less than half as much light as the full moon.

An easy way to determine the exposure to give by full moonlight, when a fully exposed negative is desired, is, first decide on the exposure you would give for a fully timed negative of the subject by sunlight, then expose for as many hundred minutes by moonlight as you would expose for 1/100 parts of a second by sunlight. In other words, for every 1/100 of a second by sunlight give 100 minutes by full moonlight.

But this rule of 100 minutes for every 1/100 of a second provides for a fully-timed negative. This would give nearly a daylight effect. Daylight effects are seldom desired in night pictures. What usually is wanted is a typical night effect. Pictures showing night effects can be made by moonlight by under-exposing the negative— $\frac{1}{4}$ the exposure needed for obtaining a fully-timed negative usually producing the result.

On a clear night, when the full

moon is shining on the subject you wish to photograph, you should obtain a typical night picture with an exposure of from 25 to 40 minutes, when using stop U. S. 4; this is the largest stop on rectilinear lenses, and is the equivalent of Stop *f*.8 on anastigmats.

This exposure should be doubled when the largest stop is used on cameras that have no stop markings. It should also be doubled when the largest stop is used on cameras having stops marked 1, 2 and 3, and when the camera has a stop No. 4 that *follows the figure 3*.

A REFRESHER

All of us need to refresh our memories from time to time and one can scarcely be too familiar with the contents of a booklet like the Velox Manual. As a guide to print making, it has served thousands of photographers in good stead, year in and year out. The glossary of photographic terms and the list of causes of non-success are especially valuable. Your dealer will gladly give you a copy.

PRINT CRITICISM

WOULD you like to have us criticize your pictures? If so send us both negatives and prints, and explain as fully as possible how they were made.

Both negatives and prints will be promptly returned, with our criticism and suggestions.

This service will be rendered *free of charge*.

Address KODAKERY, Canadian Kodak Company, Toronto, Canada.

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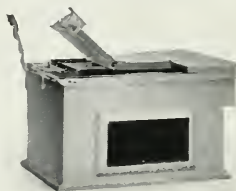
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Price, \$6.00

Printing is always a pleasure—the convenience and efficiency of this outfit make it a real delight.

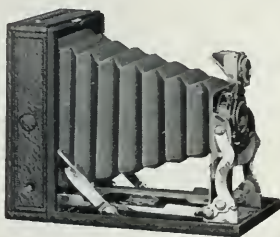
It helps you make better prints.

Both outfits are compact—there's room for them in the vacation luggage

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

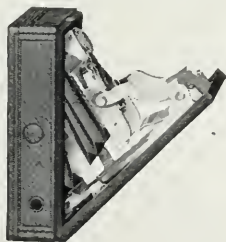
POCKET PREMO



A NEW and attractive little camera that makes $2\frac{1}{4} \times 3\frac{1}{4}$ pictures, and embodies extreme compactness and simplicity of loading and operating.

No focusing or estimating of distances is required. The lens and shutter is automatically extended and locked rigidly in focusing position, when the bed of the camera is drawn down.

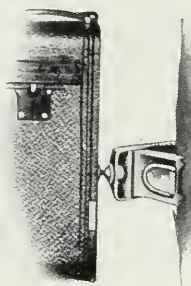
The Pocket Premo is brought into action very quickly, and unusual and interesting pictures, that would be lost if adjustment of focus were necessary, may easily be secured.



Dimensions : $1\frac{1}{4} \times 3\frac{1}{4} \times 4\frac{9}{16}$; weight : 18 ounces.

*Ask your dealer for free copy of
the 48 page Premo Catalogue.*

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The **Kodapod**

Price, \$2.00

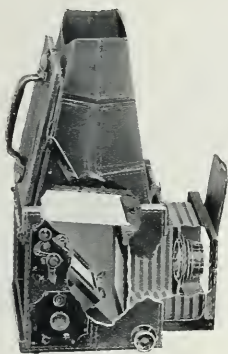
THE grip is in the clip—the jaws hold to tree, fence or similar object so tightly that rigid tripod support is afforded the Kodak.

If you slip a Kodapod in your pocket, the unexpected time-exposure can not find you unprepared.

By means of a clamping screw, the Kodak may be adjusted to correct vertical or horizontal position.

The Kodapod fits any camera that has a standard tripod socket.

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The Reasons for a

GRAFLEX CAMERA

The subject is shown in *full picture size, right side up*.
Focus and Composition are under absolute control
up to the very instant of exposure.

The shutter speeds range from "time" exposures to
 $\frac{1}{1000}$ of a second.

The shutter permits the lens to work at its full
efficiency throughout the period of exposure.

Well timed negatives obtainable with high shutter
speeds, or poor lighting conditions.

Simplicity and precision of operation.

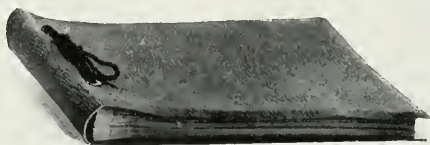
Adaptability to speed work, general
views, or interiors.

These are the features that insure
certainty in the photographic result.



*Ask your dealer or write us for
Graflex Catalogue.*

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The Kodak Album

Never were pictures so worth the taking—never so worth the *keeping*.

The Kodak Album, illustrated above, combines beauty of appearance with the utmost in album utility. Constructed on the sensible loose leaf principle, new pages may be added as your photographic collection grows.

Cover of one piece, black, narrow-grained cowhide, leather lined with edges in Oxford Bible style.

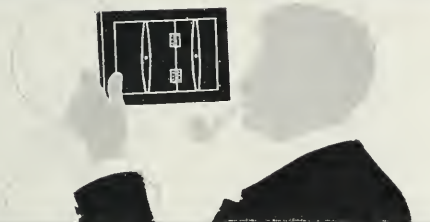
THE PRICE

4¾ x 7, A, 50 black leaves	\$3.75
7 x 11, B, 50 black leaves	5.50

Package 12 extra leaves, A, \$0.15 ; B, \$0.18

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Prints by Gaslight

Your soldier — any soldier — deserves the best.

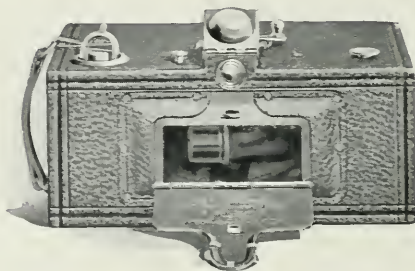
So when you send him pictures from home make the prints on

VELOX

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THE PANORAM KODAK



ON the motor trip, when the beauty of the view before you causes the driver to automatically bring his car to an abrupt stop—then is the time for the Panoram Kodak.

A different kind of Kodak is the Panoram. Its lens, mounted on a pivot, swings from one side of the camera to the other so as to include the whole view with a single exposure: while the long, narrow pictures tell the story of "that wonderful view" as no smaller sized print could.

There are two Panoram Kodaks, the No. 1 and No. 4. The No. 1 makes a picture $2\frac{1}{4} \times 7$ inches, and its lens swings through a scope of 112 degrees; the No. 4 makes a picture $3\frac{1}{2} \times 12$ inches and swings through a scope of 142 degrees.

THE PRICE

No. 1 Panoram Kodak,	\$13.50
No. 4 Panoram Kodak,	22.50

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